UNIVERSITY OF TAMPERE
School of Management

EFFECTS OF WORKFORCE TRANSFORMATION ON RESPONSIBILITIES, ROLES AND BUSINESS DEVELOPMENT OF FINNISH PENSION COMPANIES

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ABSTRACT

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There are several indicators shaping the future of workforce and workforce of the future. These indicators include phenomena such as digitalization, globalization and ageing of population. Technological development brings advanced technologies including intelligent automation available, and many roles of people are being taken over by machines. Additionally, there are many new businesses evolving and societal steps taken forward as new global, digital solutions spread all over the world. All these global phenomena force Finnish companies and workforce to adapt themselves, and therefore new requirements for skills and capabilities are created. In Finland, the pension scheme lies heavily on well-functioning labour market and high employment. Pension companies' role is to secure pension funds, to carry out statutory earnings-related pensions and to support employment. Therefore, pension companies' operational environment and mission are highly affected by workforce transformation.

In the theoretical part of the thesis the Finnish statutory earnings-related pension scheme is explained. Also the actors of the pension scheme are introduced and the role of pension companies in the earnings-related pension scheme is explained. The theoretical part forms a holistic picture of the characteristics of pension insurance business and of the offerings and processes of pension companies. Additionally, workforce transformation is explained component by component in the theoretical part of the thesis. The objective of the theoretical part is to form a proper understanding of the pension companies' current operational environment and the indicators of workforce transformation.

Effects of workforce transformation on pension companies' roles, responsibilities and business development were researched by using the Delphi method. Based on the results, it can be said that of all the workforce transformation indicators, the technological indicators are going to have the greatest impact within the next ten years. Increasing demand and growing expectations of digital services are going to drive service development of pension companies together with services for increasing number of entrepreneurs and small companies. Pension companies' role is going to remain remarkable and even increase in importance in the society. However, the role as working life developer was unclear as the experts had dissenting opinions about the subject. In total, most of the experts saw pension companies to have a lot of potential, that should be used in working life development and societal decision making.

TIIVISTELMÄ

Tampereen yliopisto	Johtamiskorkeakoulu, vakuutustiede
Tekijä:	UIMONEN, RIIKKA
Tutkielman nimi:	Työvoiman muutoksen vaikutukset suomalaisten työeläkevakuutus-yhtiöiden vastuisiin, rooleihin ja liiketoiminnan kehitykseen
Pro gradu –tutkielma:	82 sivua, 12 liitesivua
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Tulevaisuuden työvoimaan ja työvoiman tulevaisuuteen vaikuttavat useat ilmiöt, kuten muun muassa digitalisaatio, globalisaatio ja väestön ikääntyminen. Teknologinen kehitys tuo edistyneet teknologiat, kuten älykkään automaation, yritysten saataville, ja monia tähän asti ihmisten vastuulle kuuluneita tehtäviä siirtyy koneiden hoidettavaksi. Tämän lisäksi uusia liiketoimintoja kehittyy kiihtyvällä tahdilla ja yhteiskunnallisia kehitysaskelia otetaan eteenpäin, kun uudet globaalit, digitaaliset ratkaisut leviävät ympäri maailmaa. Kaikki nämä kansainväliset ilmiöt pakottavat suomalaiset yritykset ja suomalaisen työvoiman mukautumaan samalla, sillä ne luovat jatkuvasti uusia vaatimuksia taitoja ja kyvykkyyksiä kohtaan. Suomen työeläkejärjestelmä nojaa vahvasti toimiviin työmarkkinoihin ja korkeaan työllisyyteen. Työeläkevakuutusyhtiöiden tehtävä on mittavien eläkevarojen turvaaminen, työeläkejärjestelmän toimeenpano sekä työllisyyden tukeminen. Tästä syystä työvoiman muutoksella tulee olemaan suuria vaikutuksia myös työeläkevakuutusyhtiöiden toimintaympäristöön ja tehtävään yhteiskunnassa.

Tämän tutkielman teoriaosuudessa kerrotaan suomalaisesta työeläkejärjestelmästä, sekä esitellään järjestelmän keskeiset toimijat. Tässä osiossa selvennetään myös, mikä työeläkevakuutusyhtiöiden rooli järjestelmässä on. Teoriaosuuden tarkoitus on muodostaa kokonaisvaltainen kuva työeläkevakuutusliiketoiminnan erikoispiirteistä, työeläkevakuutusyhtiöiden tarjoamasta sekä niiden keskeisistä liiketoimintaprosesseista. Tämän lisäksi teoriaosuudessa on selitetty työvoiman muutos kaikkien sen osatekijöiden näkökulmasta. Teoriaosuuden tavoite on siis muodostaa kattava ymmärrys työeläkevakuutusyhtiöiden nykyisestä toimintaympäristöstä, sekä siihen vaikuttavasta työvoiman muutoksesta kaikkine komponentteineen.

Tässä tutkielmassa työvoiman muutoksen vaikutuksia työeläkevakuutusyhtiöiden rooleihin, vastuisiin ja liiketoiminnan kehittämiseen tutkittiin Delfi-menetelmää käyttäen. Tulosten mukaan seuraavan kymmenen vuoden aikana kaikista työvoiman muutoksen osatekijöistä suurin vaikutus tulee olemaan teknologisilla tekijöillä. Kasvava kysyntä ja odotukset digitaalisia palveluita kohtaan tulevat ohjaamaan työeläkevakuutusyhtiöiden liiketoiminnan kehitystä pienyritysten ja yrittäjien määrän kasvun ohella. Työeläkevakuutusyhtiöiden rooli tulee säilymään merkittävänä, ja sen nähtiin jopa korostuvan tulevaisuudessa. Sen sijaan työeläkevakuutusyhtiöiden rooli työelämän kehittäjänä herätti hyvin eriäviä mielipiteitä. Suurin osa tutkimuksessa mukana olleista asiantuntijoista näki kuitenkin työeläkevakuutusyhtiöillä olevan paljon potentiaalia käytettäväksi työelämänkehitykseen ja yhteiskunnalliseen päätöksentekoon.

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Thanking you all,

Riikka Uimonen

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1 INTRODUCTION

1.1 Unavoidable transformation

Pension companies can no longer afford to underestimate the speed of the change, that is happening in our surrounding society. The continuous and accelerating change, that is completely jumbling up business environment and transforming our workforce. It comes in forms of technology, demography and politics, and is shaping, discriminating, creating and surprising. In Finland, the pension system lies heavily on well-functioning labour market and high employment. Pension companies' role is to secure pension funds, and to support employment by offering services for improving wellbeing at work. How will this role be carried out in the future, when businesses go beyond both local and global? What kind of strategic choices are needed to make in order to meet the needs of transforming workforce, that is all more self-employed? Who will teach those, who 30 years ago thought, that education will secure them lifetime long employment? It is time for pension companies to realize, that in order to manage their responsibilities, critical choices must be made. It is time to get updated, but how?

There are several factors shaping the future of workforce and workforce of the future. The fastest, the most conductive and fundamental labour market disruptor is digitalization. According to Accenture Technology Vision (2016), by the year 2020 approximately ¼ of world's economy will be digital. Technological development, mother of workforce transformation, is at the same time a cause and effect of the world meeting the digital era. Humankind has always strived for developing creative new innovations and inventions. Over 200 years ago the world faced the first industrial revolution. There has been a long road from steam engines to mass production and assembly lines, IT systems and outsourcing waves. And today, as stated in Forbes (2016), we are facing the next industrial revolution in form of cyber-physical systems. This revolution is not about one invention but several and continuous advancements that combine digital, physical and biological worlds. These technological leaps are fast becoming the main reason why there are so many new businesses evolving and societal steps taken forward. Soon we will have to figure out a new, what it means to be a human.

Population is ageing and process automation robots is replacing people in routine tasks. That is relatively old news, but what happens when robots start to take over even more complicated tasks, so that even those who are graduating now are forced to reconsider their future job status? There are already self-driving cars on the streets and a robot lady called Amelie giving her best in online customer servicing by using artificial intelligence. Additionally, robots are entering even managerial level. According to Brynjolffson and McAfee (2011), a growing mismatch of people's skills and technological development will in worst case leave a lot of people behind and cause benefit losses in the society. In other words, as computers and machines become more and more intelligent and powerful "many workers, in short, are losing the race against the machine". (Brynjolfsson & McAfee 2011, 8)

Geographical boundaries of businesses have faded long ago, but even wider digital capabilities and networks are touching and fuzzing ways of doing business. As operational environment goes cross continents, industries and beyond the physical world, companies are becoming more capable of scaling fast. This creates new opportunities, but also requirements. Companies must be able to manage both local and global. These new ways of doing business are creating new ways of working. Digital networks and technological capabilities reach even operational. Many back-office functions have already been outsourced to low cost countries, but because digital information technology can be used almost anywhere, many functions can still be renewed. All perfunctory tasks can be digitized and transferred for example to customers to handle, or be automated. Yet, as high as 87 % believe that it is absolutely not possible that a robot could replace them at their current job within the next ten years (Onninen 2016, 31). Anyhow, there is a great possibility that within next 10-20 years as high as 36 % of all work in Finland can be computerized meaning to be replaced by a robot or artificial intelligence (Pohjola 2015, 17).

Digitalization creates new jobs, but at first it destroys old ones. Everything that can be digitized will sooner or later be digitized. Also everything that can be automated will sooner or later be automated. Anyhow, there are still some jobs that are too hard for robots to handle. As long as machine minds are still struggling with the most difficult tasks, there must be skilful people to handle them. Yet computers are becoming more and more important tools for workforce's daily life and more adaptability is required. Therefore, businesses have to update their personnel and at

the same time they have to start to require all more skilled people. But the meaning of 'skilled' has changed. In order to be capable of creating value in the continuously transforming world, workforce has to be able to learn fast. Institutional education may give offer basic capabilities, but companies skill and knowledge requirements are shifting fast. University degree programs will most probably not be able to keep up with that pace. Yet, skill gaps must be filled somehow and workforce must be updated to meet the digital era. The question is, who is responsible?

1.2 The Finnish society and pension companies are facing challenges

Not only need workforce to be adaptive and learning. Digitalization challenge organizations' learning skills as well. Unfortunately, according to Accenture Technology Vision for Insurance 2016, current workforce of insurance companies is not ready to meet the challenges of the digital era. Brynjolfsson and McAfee (2011) agrees: "Our technologies are racing ahead but many of our skills and organizations are lagging behind." At the moment insurance organizations, including pension companies, are siloed and include other similar restricting structures. These brakes create hinders to workforce transformation as well as to organizational function and competence improvements. As long as organizational structures do not allow quick development, pension companies will not be able to take full advantage of digitalization benefits.

The rapid change is challenging for pension companies, as pension planning is truly characterized as long term planning that reaches over several decades. Now that the world is transforming in a most drastic speed, even shorter terms must be taken into serious consideration as these short-term changes can have huge effects on the long-term balance and societal development. Additionally, technology, demography and business changes are happening both in and outside pension companies. In order to be able to answer to the needs of the fast evolving society and labour market, pension companies must reconsider their business strategies and operational choices. This means that some critical thinking must be made. In what kind of world are both pension companies and their customers living in the future? What will be different and what will be customers' needs by then? What are the functions that will truly create value to both customers and companies? Change and development are and will be continuous, and pension companies must be able to keep up with them. This will probably mean flexibility, proactivity as well as being a true partner for customers.

Development of demographic characters of Finnish population, including growing longevity and migration, change the shape of our population pyramid and workforce line-up. Not only is population ageing fast, but it is also living longer. All the way until approximately year 2035 ageing of the Finnish population is accelerating. After that, the development becomes steady, and by that time the protected old-age ratio will be 41, meaning that there are roughly estimated only 2,5 persons in working age per one pensioner in Finland (Eurostat, 2016). Even though the Finnish pension system is relatively solid and improving from both financial and social perspectives, the demographic development is problematic from digitalization point of view. This technological revolution affects especially the aged and the uneducated people. In year 2025, millenials will be the largest group of workforce, but still there are many people who are not so called diginatives. When digital requirements are growing, both aged and uneducated will face even harder times to find employment.

On the top of all this come regulation and legislation, that try to keep up with all these changes. When it comes to pensions, there are two highly important factors for regulators to consider. Firstly, legislation should support new technologies and entrepreneurship as they create new jobs to labour markets. Legislation aspects of workforce transformation has in fact lately been discussed in Finnish media. Erik Brynjolfsson stated in an interview of Helsingin Sanomat (2016), that there lie great risks of governments failing to adapt regulation to new technologies and ending up protecting past from the future as digitalization. Secondly, governments should make sure that labour market legislation support the Finnish pension scheme.

In pension sector, there has lately been fuzz about the upcoming Pension Reform, which will improve the Finnish pension scheme in terms of both financial and social sustainability. Nevertheless, in the leading article of the latest Työeläke magazine, Kati Kalliomäki highlighted that all regulations should be kept updated in order for pension companies to succeed in the future. Pension regulation is still too rigid and does not adequately support the new ways of working. (Kalliomäki, 2016) Kalliomäki's concerns are valid, as all more people are choosing entrepreneurship and freelance. Business world have already woken up to see the change. Accenture, an international professional service provider, has estimated that in four years 43 % of workforce in the United States is estimated to be freelance (Accenture Technology Vision For

Insurance, 2016). This trend is clearly an answer to companies' prayers, as according to another research of Accenture, 82 % of companies use external workforce in order to fill skill gaps (Accenture Workforce of the Future, 2015). Even though regulation would not completely keep up with the development, is there something pension companies could do in order to support workforce transformation and new types of employment?

1.3 Research objectives and research questions

This thesis will research how the workforce transformation and changes on labour market will affect pension companies, and how pension companies can get prepared to the insecure future. The goal of the theoretical part of this thesis, is to gain understanding of the Finnish pension scheme, and what kind of role pension companies have in it. Additionally, a holistic picture of workforce transformation is formed in the theoretical part of this thesis, and explained component by component. The goal of the empirical part of this thesis is in turn to find answers to questions about how the Finnish workforce and pension environment will change, and what does this change mean to the Finnish pension companies. In this part of the thesis, factors that pension companies will need consider in order to be able to fulfil their responsibilities in society in the future, will be identified and estimated by industry experts.

At first, a holistic picture of what kind of phenomena are affecting workforce and the Finnish labour market will be formed, and how might these phenomena shape the future. The most powerful indicators that affect the operating environment of pension companies will be identified. Secondly, the question of what are the challenges that pension companies need to overcome in order to secure Finnish pensions and stability of Finnish pension system, will be answered. Also, this thesis will research what kind of role pension companies are going to have in the society, the Finnish labour market and working life development in the future, bearing workforce transformation in mind. Therefore, the most fundamental strategic questions that pension companies need to answer and the operational changes that need to be considered will be concluded. There are three main research questions and two sub-questions, that are rather equally examined in this thesis:

1. **How are workforce and Finnish labour market going to change in the future?** How do these changes affect pensions and customers of Finnish pension companies? How might the business environment of pension companies look like in the future?

2. **What kind of role and responsibilities are Finnish pension companies going to have in the future?**

3. **What kind of business strategy choices must be made and what kinds of functionalities are required in order for pension companies to fulfil their responsibilities?** What kind of operational changes are needed in pension companies in order for them to succeed in their mission?

1.4 Scope

This thesis examines the pension companies, that take care of the earnings-related employment pensions in Finland. Other national old-age pensions and organizations behind them as well as all pension funds and foundations are scoped out. Additionally, the Finnish pension scheme and its development are in scope of this thesis, but only as parts of the theoretical part. In other words, it is not intended to examine the Finnish pension scheme. Instead it forms the basis for understanding the business environment and purpose of pension companies in Finland. Additionally, there were several pension industry experts participating and answering to the research questionnaires, but in order to obtain answers to the research questions, neither the experts' motives nor reasons for their answers are examined in this research.

In this thesis, business development includes mostly business strategy choices, but also operational changes on the level that is relevant from the business strategy perspective. The business strategy choices include for example service offerings, business or business process development and customer-service-related matters. All other strategy questions, such as investment strategy choices, are scoped out. That is why this research is not taking a stand on investment return requirements or making any investment risk scenarios. Operative changes of pension companies, as already mentioned, are examined only on the level that is relevant in terms of strategic choices in the future.

These changes might cover operative questions such as level of automation, adding or reducing functions or new internal services.

Additionally, this thesis is not about to examine the development of concessions of pension companies or pension legislation within the next ten years. In ten years' time, there will most likely not be any major changes in legislation or concessions, that would drastically change the pension insurance business environment, which is why they have been scoped out. Instead of legislation question, this thesis will examine, what kind of business strategy choices pension companies could or should make within the framework of their concessions and pension legislation. What kind of unrevealed business potential is there, that pension companies and the society could benefit from? What kind of augmented role could or should pension companies take? How could this potential increase value for different stakeholders of pension environment? Anyhow, effects of other legislative changes, such as employment-related labour market legislation, are taken into consideration, but only on the level that is relevant in terms of pension companies' business environment.

1.5 Literature review and earlier researches

In 2014, Ministry of Economic Affairs and Development produced a large report of the future of Finnish work and employment. The report is made to cover all the major trends and issues concerning the Finnish labour market and work providing a holistic overview of the labour market, employment and workforce development. The report takes into consideration many of the workforce transformation indicators, that are also presented in this thesis. However, the question of, what workforce transformation and technological development mean to the Finnish pension scheme and pension companies, has not been discussed in the report. In this thesis, the interesting and accurate research areas; workforce transformation and Finnish pension environment, are combined into a new research perspective. Therefore, this thesis combines two specific insurance research areas: 1. Insurance business and economy, and 2. Pension schemes and social insurances. This subject is a true hot potato at the moment, and it has created discussion and debate in many societal levels.

Technology, technological development and digitalization questions have been on table on the international level for a quite some time. Many leading research institutions and companies, such as Massachusetts Institution of Technology (MIT) or Gartner, that are specialized to technology research, have built technology roadmaps and technology development forecasts based on their studies. These institutions are producing high quality research in technology related subjects like workforce transformation for example. Actually, MIT researcher Erik Brynjolfsson has sunk his teeth deeply in the questions of societal effects of technological development and digitalization. His researches and books about technological development, employment and society are used as source material in this thesis. The future and future technologies have also been researched on national research field. Osmo Kuusi and Risto Linturi are well-known Finnish technology visionaries, who has together with Toni Ahlqvist published among others a report of future technology trends affecting Finland.

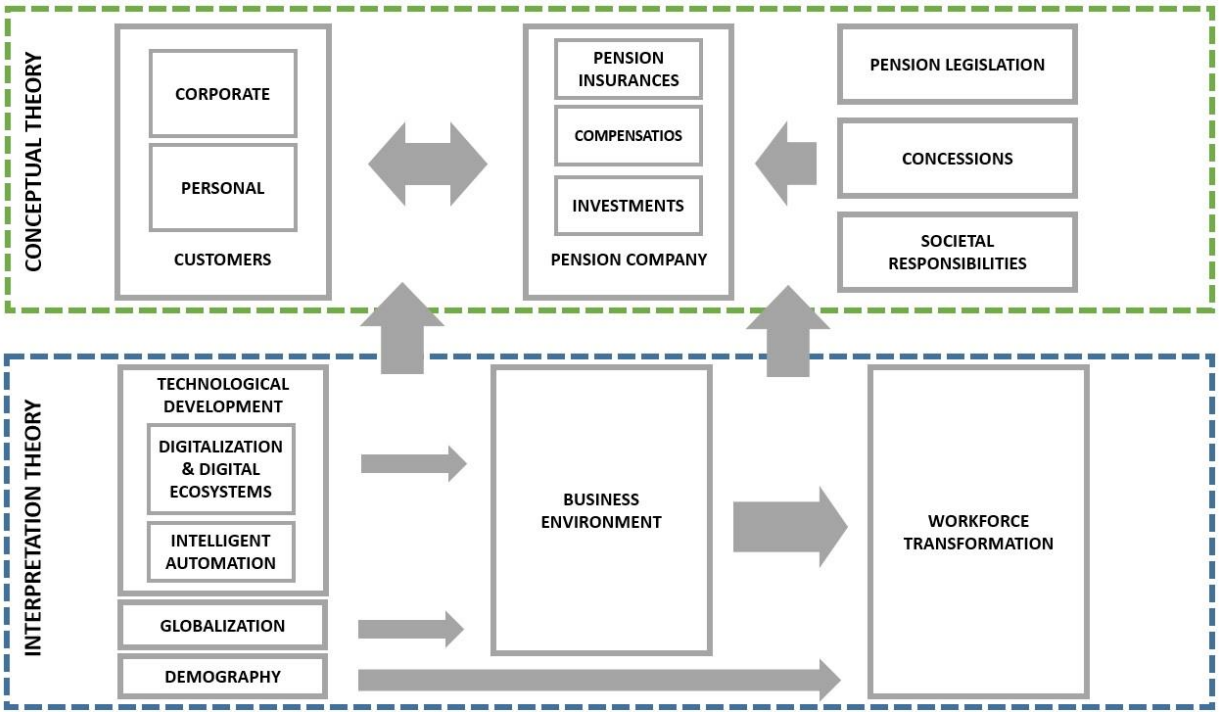
Finnish Central of Pensions is in turn one of the leading research institution in pension related subjects in Finland. It produces news, statistics and publications frequently, and has a large library of various materials. The upcoming pension reform has lately snatched a lot of attention, but it is no wonder, as sustainability of pension system is a critical and timely question. Therefore, longevity and other demographical changes and their factors are well researched by Finnish Central of Pensions. In addition, Statistics Finland produce a large variety of useful statistics of population, markets, employment and demographical statistics in Finland. It also calculates some forecasts regarding for example of demographic development of population. Publications of Finnish Central of Pensions and statistics of Statistics Finland are used as source material in the theoretical part of the thesis.

Finnish pension companies have mainly been researched from the perspective of their investments, investment activities, competition and customer service. Different investment assets, such as real estate investments and equities as parts of investment portfolios have been popular master's thesis subjects in fields of both insurance and other fields such as financing or economics. Erkki Rajaniemi, advisor for the management of Financial Supervisory Authority, has in turn researched competition and the meaning of competition between Finnish pension companies. In his doctoral thesis, The role of competition in a decentralised implementation of the employee pension scheme

(2015), he researched the Finnish pension market and the complexities of the competitive environment. The doctoral thesis of Rajaniemi is used as source material later in this thesis. Nevertheless, besides the competitive environment of Finnish pension markets, the business dimension of pension companies' activities has not been researched very well. Therefore, this thesis offering a new perspective to the field of insurance research.

1.6 Theoretical framework

Theory can be seen as a starting point for interpretation and discussion, as a point of view as well as a base for new theories (Hirsijärvi & Hurme 2011, 40). Purpose of this thesis is not to create a whole new theory. Instead old theories are applied and used for examining the phenomena in question. In this thesis the theoretical framework consists of conceptual theory and interpretation theory. Conceptual theory creates a base for understanding research results. In other words, it can be seen as a starting point for interpretation. Interpretation theory therefore sets frames around the chosen point of view, from which a selected phenomenon is being examined. (Eskola & Suoranta 2014, 82)



Picture 1. The theoretical framework

The theoretical framework consists of two theory areas – conceptual and interpretation theories, and the both include several components. Conceptual theory is the basis for the thesis. As seen in the theoretical framework illustration (Picture 1), pension companies operate under strict control and heavy legislation when fulfilling their responsibilities as pension guardians in the Finnish society. Concessions, legislation and societal responsibilities set frames for strategical planning of pension companies. Besides these, pension companies' customers, which are also affected by workforce transformation, are an important part of operating environment of pension companies. Last but not least comes pension companies themselves, who play several big roles in pension scheme and pension business environment. The concepts presented above are the key concepts of the conceptual theory.

As it can be seen in the Picture 1, there are several indicators affecting workforce transformation. These indicators form the interpretation theory. Technological development including digitalization and intelligent automation including robotics and artificial intelligence shapes business environment together with globalization and raise of platform economy. Technological development touches also organizational structures, functions and strategies. As business environment changes, ways of doing business change and set new requirements for workforce. Demographic changes therefore shape the population pyramid of workforce as well as the amount of people on labour market. Workforce transformation is remarkable game changer in pension companies' business environment. It affects from both inside and outside organization by creating opportunities but also throwing challenges. Putting all these theoretical concepts together into the theoretical framework, this thesis looks the pension companies' business environment through workforce transformation lenses.

1.7 Research methodology

As mentioned earlier, this thesis combines two essential research areas of insurance science, and therefore it has two essential perspectives – the societal and the business perspectives. The societal perspective is important as pension companies are essential actors in the Finnish society for several reasons that are explained in the second chapter. However, in this thesis the business perspective has at least as important role as the societal perspective, as the two perspectives are closely tied together. This thesis has qualitative characteristics, but uses mixed methods as it will be explained

later in this sub-chapter. According to Hirsjärvi, Remes and Sajavaara (2013, 161-164), in qualitative research the object is often to describe the reality and the real life phenomena, that are linked, related or dependent on each other, in a most holistic way. A qualitative research handles research topic as a unique matter, and in qualitative research people are often used as data sources. So does this thesis. The objective is to describe the effects of workforce transformation on pension companies and their roles and responsibilities as well as on their business development, and to form a holistic picture of the ongoing change and its effects within the next ten years.

This thesis is future oriented and belongs to futures studies. Futures studies is a general term that covers all disciplined research regarding the future, that is predicting by using scientific methodology. Basically the future is unknown, but knowledge of the future can be seen as a combination of currently known facts and conception or interpretation. There are several methodological assumptions for futures studies. Firstly, the world is dynamic and its structure changes all the time, which creates new opportunities for human actions. Secondly, changes can be identified and their speed and direction can be estimated beforehand at least in rough measurements. Thirdly, antithetical forecasts help to clarify and understand consequences of crisis, which makes them valuable even though they would not correspond to the real life development. Lastly, people can affect the future within the frames of the past, but not determined by the past. Purpose of futures studies is to identify possible futures, to estimate possibilities of the possible futures and to analyse how desirable the possible futures are. (Bergman, Kuusi & Salminen 2013, 19; 21-25) This thesis focuses mainly on the first of the three purposes.

Information and knowledge that futures studies produce are characterized as anticipatory and intuitive. Additionally, information about the future loses its meaning when the future turns into the current and the past. Therefore, a vital criterion for future studies it its ability to affect the future. In other words, future studies are at the same time target of both knowledge and actions. When studying the future, scientists are not able to observe or have any recorded material of the target phenomenon. This is a cause of the time perspective, as what has not happened yet, cannot be recorded. Instead, scientist must use other, possibly historical, data and make conclusions based on that information. For example, weak signals, trends and mega trends are identified by using data, that is available from recent or even more distant history. (Bergman, Kuusi & Salminen 2013, 34-

37) In this thesis, the used research data is gathered during the research project, and older information is used as a base material in the theoretical part of the thesis.

Data can be divided into two categories, qualitative and quantitative, by its characteristics. Qualitative data describes qualities, whereas quantitative data quantities. Therefore, quantitative data express information in form of numbers and qualitative data in form of words. Quantitative data can be measured more accurately than qualitative data, as the latter cannot be counted and expressed in quantitative measures. Qualitative data includes descriptions and detailed definitions of different phenomena, and in some cases that kind of data can be more accurate than just numbers. Many researches combine both qualitative and quantitative data and methodology. Actually, data can be viewed from both quantitative and qualitative perspectives. For example, qualitative data can be quantified when expressing opinions or feelings in numeric scales. (Walliman 2011,71-73) This thesis combines both qualitative and quantitative data, and research methodology. The primary data that has been used as research material is collected by interrogation, and the interrogation has been implemented by using Delphi method and web-based questionnaires. In insurance research, Delphi method has not been commonly used, which is why it provides new research perspectives to this thesis in a methodological way. Additionally, it has several benefits regarding the chosen research subject. Delphi and the analysis methods as well as the research details and methodological benefits regarding this thesis are described in the beginning of the fifth chapter.

1.8 Thesis structure

The theory part of this thesis is divided into three separate chapters, that forms the basis for understanding the observations in the empirical part of this thesis. The first two chapters cover conceptual theory and the third the interpretation theory. In order to understand pension business, it is important to know current responsibilities, scope of concessions and legislative requirements of pension companies in Finland. The second chapter takes a look at the role of pension companies in the Finnish pension scheme and society. It covers this frame-setting area of pension theory telling essential information about the Finnish pension scheme, pension legislation and the earnings-related employment pensions.

The other half of conceptual theory is covered in the third chapter, that gives a holistic picture of how pension companies operate and what kind of functions there are in the companies. It is important to understand pension organizations, their operational environment and businesses. What kind of functions are there currently and what are they needed for? How do these functionalities bring value to both pension companies and their customers? The third chapter tells what kind of offerings do pension companies have at the moment. The third chapter gathers together information about core businesses, additional services and offerings as well as customers of pension companies.

The fourth chapter covers the interpretation theory. It is necessary to understand what is going to change and how in the pension companies' business environment in the future, and where the change comes from. What does workforce transformation mean exactly and why should pension companies worry about it? This chapter includes descriptions of several important phenomena that causes workforce transformation and change the pension companies' business environment. Key words for this chapter are technological development and digitalization, intelligent automation, including robotics and artificial intelligence and their impacts on workforce and society. Also demographics and globalization are explained in this chapter. The objective is to clarify, how technology, globalization and demographics affect ways of doing business and ways of working. At the end, as all these phenomena that cause workforce transformation, have been defined, it is easier to understand its effects on the pension environment.

The fifth and the sixth chapter cover the empirical part of this thesis. At first, the methods and research materials of the research are defined. Also processes for gathering, examining and analysing the research materials are explained. Additionally, the essential results are presented in the fifth chapter. In this thesis, the discussion part, the sub-chapter 5.4, is relatively wide, and there are several conclusions drawn in this part of the thesis. Therefore, the sixth chapter, the conclusion, focuses mainly on answering to the research questions. The sixth chapter gathers together the essential conclusions and comments of the obtained results from the research questions' point of view, whereas the discussion part gathers wider conclusions from the perspective of the essential results of the questionnaires. Critical evaluation of reliability and validity of this thesis and suggestions for further research can be found at the end of the sixth chapter.

2 PENSION COMPANIES AND THEIR ROLE IN FINNISH PENSION SCHEME

In this chapter, the Finnish earnings-related occupational pension scheme as a part of the overall pension scheme is explained. In addition, the actors of earnings-related occupational pension scheme are introduced and their roles are explained. In order to form a holistic picture of what pension companies are and what are their roles and responsibilities, this chapter takes also a look at the legislative and regulatory environment of pension companies.

Overall pension cover can be described with the tree pillar model. The first pillar covers the statutory earnings-related occupational pension and residence-based national and guarantee pensions that ensures minimum income, if occupational pensions are too low. The second pillar consists of pensions provided by employers and market-specific pensions, whereas the third pillar includes private pension saving solutions. The last two pillars mentioned are basically solutions that reinforce the first pillar pensions. In the Finnish pension scheme, the first pillar stands strong, and because it provides comprehensive pension cover itself, the meaning of the second and the third pillar is small in Finland. Statutory earnings-related occupational pension is seen to belong to the first pillar. (Kari, Kattelus & Saari 2013, 48-49; Hietaniemi & Ritola 2007, 9)

2.1 Finnish earnings-related occupational pension scheme

The objective of the Finnish pension scheme is clarified in the pension strategy alignment of Ministry of Social Affairs of Finland. According to the alignment, the earnings-related occupational pension scheme ensures insurance based pensions to all salary earners and entrepreneurs, that in relation to earnings covers a decent consumption level in the old age. (Barr 2013, 28; according to Ministry of Social Affairs 2005, 2). In other words, an income level that decently corresponds to a person’s income level during his time at work, is aimed to be reached by the statutory earnings-relate occupational pension scheme (Barr 2013, 16). In the Finnish pension scheme the compensation degree, the relation between old-age pensions and an average wage, is 54,8 % (Finnish Central of Pensions (13.12.2016e)). The objective of ensuring a decent income level is connected to the objective of evening consumption between different stages of life cycle.

In old age, income is commonly not earned by working, which is why pensions even consumption possibilities over a life cycle and prevent poverty amongst elderly people. (Barr 2013, 17)

The Finnish earnings-related occupational pension scheme is benefit-based, partially pay-as-you-go and partially funded pension scheme (Hietaniemi & Ritola 2007, 51). A pension scheme being benefit-based means, that pension benefits are determined in relation to earnings that a person has made during his whole career. Because there are no limits set for individual pension benefits, everyone has a right to get a full accumulated pension based on above mentioned earnings calculations. Nevertheless, the total amount of a person's pension benefits is affected by inflation calculations and a predictive lifetime adjustment. The inflation calculations affect pensions by raising and the predictive lifetime adjustment by decreasing a monthly benefit amount. These actions do not affect the total amount of pension benefits, but the amount of monthly instalments. This being, if predictive lifetime adjustment rises, amount of each pension benefit instalment decreases. (Barr 2013, 18; 20)

A pension scheme being partially funded means that a part of collected pension contributions paid by employees, are funded for the pension benefits that are to be paid in the future. In Finland 25 percent of pension contributions are being funded (Tenhunen & Vaittinen 2013, 16). The rest of the pension contributions are consequently utilized as in a pay-as-you-go pension scheme – for paying current pension benefits. With the partial funding the Finnish pension scheme provides for raising pension benefits in the future. (Hietaniemi & Ritola 2007, 51)

In Finland, earnings-related occupational pensions are financed mainly by employers and employees (Barr 2013, 21). Pension contributions are a percentual part of occupational earnings. There are three factors that affect the total amount of one's pension benefit. The first is pension contingency, that accumulates bit by bit during a person's career according to accrual pension rates. The second factor is the total accumulated occupational earnings, that a person has made during his time at work. (Barr 2013, 18) These total accumulated occupational earnings are revaluated with a specific earnings-related pension index, that takes changes in earnings and price levels into consideration (Hietaniemi & Ritola 2007, 19). The third factor is predictive lifetime expectancy,

by which a few pension contingency adjustments are made (Barr 2013, 18). Since 2010, these adjustments are calculated by lifetime expectancy coefficient (Hietaniemi & Ritola 20017, 21).

2.1.1 Pension reform 2017

For over twenty years now, there have been an urgent need of retirement income system improvements in industrialized countries. The need is caused mostly by ageing of population and concerns over fiscal sustainability. This has led to several reforms in the countries in question, and so has it in Finland as well. (Chomilk, D'Addio, Reilly & Whitehouse 2009, 515) Last time the Finnish pension scheme met remarkable renewals, was year 2005. Improvements that was made by that time have been called into question. Taking the development of protected old-age ratio into consideration, new objectives of occupational pensions, pension cover, financial sustainability and career lengths have been reconsidered. (Finnish Central of Pensions 2013, 75-79) This reconsideration and clarification work has led to the upcoming reform of Finnish pension scheme, which according to Mikko Kautto (2015), manager at Finnish Central of Pensions, can be described as the social political renewal of the decade. The reform and changes to the Finnish pension scheme are to be valid in January 2017. The reform applies mainly the earnings-related occupational pension scheme and legislation, but still national and guarantee pensions are updated in order to support the changes in the earnings-related occupational pensions. (Hallituksen esitys 16/2015)

Like in most industrialized countries, the key objectives of the reform are administrational efficiency, affordability, financial sustainability, coverage and adequacy (Chomilk, D'Addio, Reilly & Whitehouse 2009, 516). The intention is to raise retirement age gradually and change the determining criteria so that it is tied to life time expectancy. Behind this reform, there is an aspiration of retaining the relationship between working time and time on retirement. At the same time, it is intended to expand pension insurance responsibility to cover everyone between 17 and 69 or 70 years old, depending on a year of birth. At the moment, pension insurance responsibility covers only all under 68-year-old persons of age. Other changes concerning accrual rates of pensions, have also been suggested, so that they would become more condign and would encourage more to continue working in old age. Part-time pension is intended to be discontinued and be replaced by early old-age pension and career pension for persons with heavy work. At the same time legislation concerning investment fund management is re-organized to that it supports stock

investments. As a whole these reformations aim at lengthening careers and facilitates gaining investment profits, in order to stabilize and strengthen financial sustainability in the future. (HE 16/2015)

As explained above, the pension reform causes several changes in pension regulation and pension benefit determining criterion, and therefore it affects pension companies on an operational level. The pension reform requires changes in pension companies' technical systems, skills of personnel, instructions and communication both inside and outside the organization. Still and all, all pension companies have already made preparations in order to be ready to operate according to the new reform. For example, Mutual Pension Insurance Company Elo tells in their annual report of year 2015 (Elo, 25.10.2016f) that, employees have been re-trained, new instructions created and technical systems updated to meet the new requirements. Additionally, Elo and other pension companies have helped their customers to get prepared for the reform by having information events, publishing pension reform materials and advising customers with their concerns (Elo 25.10.2015f, 15; Etera 25.10.2016d, 1-2; Ilmarinen 25.10.2016d, 5; Keva 25.10.2016d, 2; 16-17; Varma 25.10.2016a, 4-5).

2.1.2 Earnings-related occupational pension acts

There are several different types of earnings-related occupational pensions, which is why there are several different acts for each of them in the Finnish law. In private sector, employees are insured by Employee's Pension Act (TyEL) and entrepreneurs by Self-Employed Person's Pension Act (YEL) depending on the form of employment. Seafarers and farmers have also their specific pension acts, Seafarers' Pension Act (MEL) and Farmers' Pension Act (MYEL), which are not examined in more detail in this thesis. In case of TyEL, employer is obliged to organize pension cover to its employees. TyEL covers all employers working in private sector, excluding seafarers but including employees that has been sent to a work mission from Finland abroad. Additionally, with certain conditions foreign employers working in Finland are covered by TyEL. According to YEL, all self-employed persons living in Finland or any EU or ETA country are obliged to have pension insurance, that ensures income and living after retirement as entrepreneur or in case of losing ability to work. YEL requires a person to work in his company as owning a company is not

enough. Self-employed entrepreneur is defined to be a person who is doing work for wages without being in an employment relationship. (Grönlund et al. 2011, 17; 42-48; 61-62)

Pension legislation in public sector is also divided into several different pension acts. Officials and all employees of municipalities and federations of municipalities are covered by the Local Government Pensions Act (KuEL). If a person works for a municipality or a federation of municipalities, is he automatically covered by a KuEL pesion insurance. This is the main difference between TyEL in private sector and KuEL in public sector. State officials and employees are instead covered by State Employees' Pension Act (VaEL), which applies to everyone working for the state. The last pension act concerning public pensions is the Evangelical-Lutheran Church Pensions Act (KiEL) (Grönlund et al. 2011, 94-97). Together with VaEL, KiEL is scoped out of this thesis as pensions under these acts are not managed by Finnish pension companies.

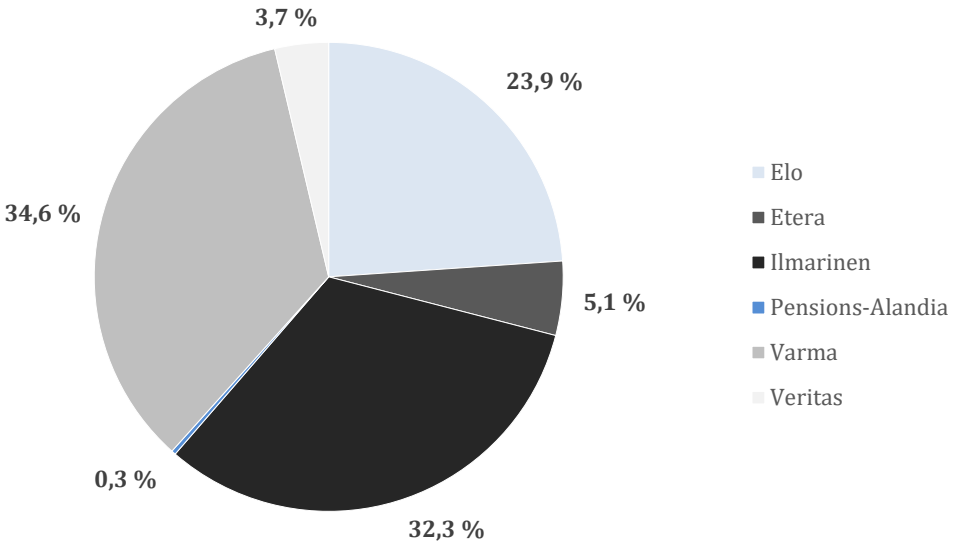
2.1.3 Finnish pension providers and supervisory

In Finland, earnings-related occupational pensions in private sector are managed by private pension companies. On international level, this is highly exceptional. (Hietaniemi & Ritola 2007, 35) In this particular pension management system, all investment activities and investment management related to earnings-related occupational pension funds have been outsourced to pension companies in private sector. (Tenhunen & Vaittinen 2013, 127-128). There are up to 28 pension institutions in Finland, including specific pension funds, company pension foundations and pension companies. All of them are domestic. (Finnish Central of Pensions (13.12.2016d)) Out of these institutions, seven are pension companies (Finnish Central of Pensions (18.10.2016b)), of which the pension provider of public pensions, Keva, is actually a pension institution. However, in this thesis Keva is included in the seven pension companies. Because of the strict regulations concerning founders of a pension company, foreign companies are not directly allowed to offer statutory pension insurance solutions on the Finnish market (Tenhunen & Vaittinen 2013, 127-128). Decentralization of pension fund management between several pension companies reduces not only power of each company but also investment risks. In case of bankruptcy, other pension companies are together responsible for securing pensions of the fallen company. (Barr 2013, 51, 70)

In public sector, earnings-related occupational pensions are handled by specific public law institutions. Anyhow, the benefit structure of both public and private pensions is the similar. The difference between pensions in public and private sector is in the management. Responsible pension companies are different in private and public sectors. (Barr 2013, 17-21) Pension companies in both public and private sector are listed in the Table 1. In addition, market shares of pension companies in the private sector are illustrated in the Picture 2.

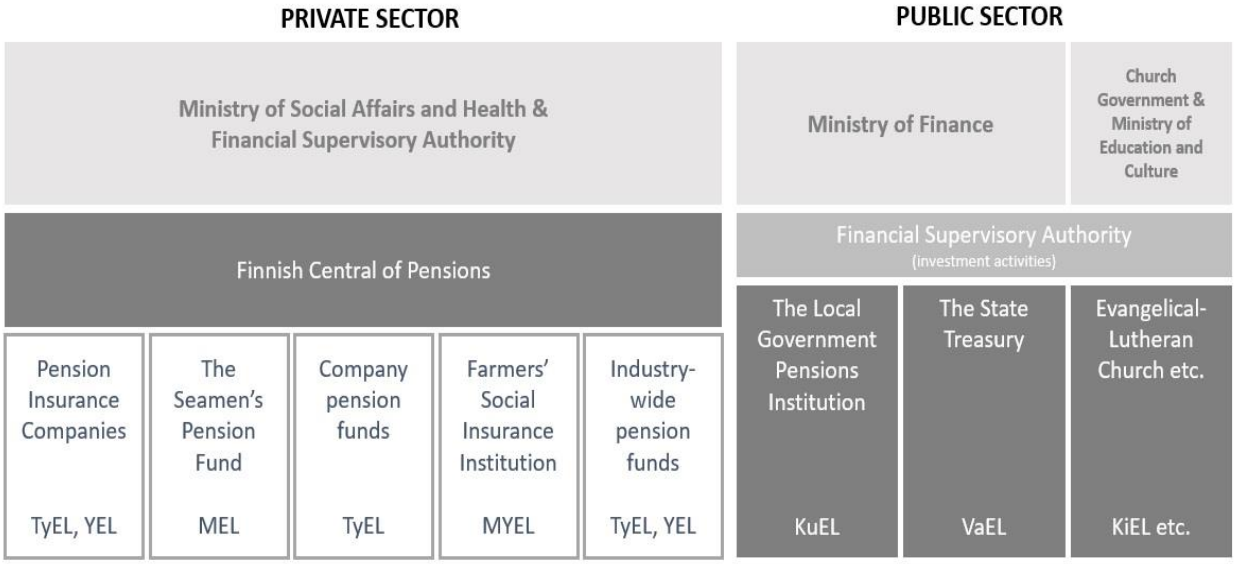
Table 1. Pension companies in public and private sector (Finnish Central of Pensions 2016b)

PRIVATE PENSIONS (TyEL, YEL)	PUBLIC PENSIONS (KuEL)
▪ Elo Mutual Pension Insurance Company ▪ Etera Mutual Pension Insurance Company ▪ Ilmarinen Mutual Pension Insurance Company ▪ Pensions-Alandia Pension ▪ Varma Mutual Pension Insurance Company ▪ Veritas Pension Insurance Company Ltd	• Keva



Picture 2. Market shares in private sector (Finanssialan keskusliitto 2016)

Supervisory of private and public earnings-related occupational pensions is administered by different parties. Ministry of Social Affairs and Health and Financial Supervisory Authority are responsible of private sector. (Barr 2013, 17-21) Furthermore, Finnish Central of Pensions coordinates private pension companies (Hietaniemi & Ritola 2007, 35). Supervisory of public sector is included in responsibilities of Ministry of Finance, and in responsibilities of Church Government and Ministry of Education and Culture for KiEL's part. Financial Supervisory Authority supervises also investment activities of public pension providers. (Finnish Central of Pensions (13.12.2016c), TELA (13.12.2016)) Actors and their supervisors can be seen in the Picture 3 below.



Picture 3. Pension insurances and supervision of pensions in private and public sector (Finnish Central of Pensions (13.12.2016c), TELA (13.12.2016))

2.2 Role and responsibilities of Finnish pension companies

Pension companies that handle statutory earnings-related occupational pensions are considered to be so different from other insurance companies, that there is specific legislation directed regarding these pension companies (Lehtipuro etc. 2010). Two insurance-related acts, Act on Pension Insurance Companies (354/1997) and the Insurance Companies Act (1062/1979), are applied to Finnish pension companies (Hietaniemi & Ritola 2007, 43). According to Act on Pension

Insurance Companies (354/1997), pension companies' responsibility is to rehearse pension insurance that is included in national social security. In order to carry out this responsibility, pension companies are obliged to manage their funds in a way that secures pension benefits. In addition, a pension company is not allowed to rehearse any other insurance business except pension insurance. In order to be allowed to handle statutory earnings-related occupational pensions, a pension company must have a concession that is granted by the Finnish Government and is valid in Finland. A pension company can get a concession, if it has original capital of 5 000 000 euros and it satisfies all the ownership and functional requirements. If Government sees it necessary, it can add conditions to concessions in order to secure steady functioning of the pension companies. (Act on Pension Insurance Companies 25.4.1997/ 354) In addition to these insurance-related acts, Finnsich Company Act is partially applied to two limited companies (Hietaniemi & Ritola 2007, 38-39), Veritas and Pensions Alandia (Finnish Central of pensions (18.10.2016b)).

Practically, pension companies are responsible for awarding and paying pensions to pension recipients, which is the core purpose of the pension companies. They also act as fund managers of remarkable 106,3 billion euros in private sector and 66,5 billion in public sector. The pension funds in private sector represent 59 % of all earnings-related occupational pension funds in Finland. The respective number of private sector is 37 % (TELA 2016, 2-3). As told earlier, earnings-related occupational pensions are mainly financed by employers and employees (Barr 2013, 21). Employers pay pension contributions to a pension company, and the pension company invests a part of the gained funds in a secure and profitable way. Rest of the funds are used for paying current pension benefits to pension recipients. (Hietaniemi & Ritola 2007, 37) Pension companies are by law expected to have low operational costs at the same time as they try to earn good, steady and long-term profits to pension funds. All this, even though high business profits are not their main target as it is for many business enterprises. (Lehtipuro etc. 2010)

Pension companies have strong knowledge of economic life, work, business and commerce as well as a large variety of different pensions-related matters. This is why, together with Finnish Central of Pensions, Finnish pension companies are active in participating in legislation and guideline preparation. They are also obliged by TyEL to cooperate in gathering statistical information and in other actions that improve pension-related development. (Hietaniemi & Ritola 2007, 37; 45)

Besides these responsibilities, pension companies have a role as advisor in pension and work related matters for its customers (Hietaniemi & Ritola 2007, 37). In addition to this, in their strategic alignments, they have engaged to help their corporate customers to improve work life quality, wellbeing and satisfaction of their employees. Even though pension insurances are the core business of pension companies, this mission of improving ability of work, stands strong in each pension companies strategy and communication. (Pension companies' websites 2016: Elo (25.10.2016a-e), Etera (25.10.2016a-c), Ilmarinen (25.10.2016a-c), Keva (25.10.2016a-c), Pensions Alandia (25.10.2016a-b), Varma (25.10.2016b-c), Veritas (25.10.2016a-c)) More detailed information about pension companies' customers and services comes later in the third chapter.

3 BUSINESS ENVIRONMENT, SERVICES AND FUNCTIONS OF PENSION COMPANIES

Pension company is an insurance provider and therefore its business has many same characteristics as any other insurance provider. Pension companies' core business is insurance and therefore risk is a key term in pension insurance business as in any other insurance. The core functions of a pension organisation are the same as in any other insurance business organization; insurance, claims and investment. Anyhow, pension insurance is a very special type of insurance, and it has many unique characteristics concerning risk, liabilities and legislation. This chapter forms an understanding of these special characteristics, business offerings and customers of Finnish pension companies.

3.1 Characteristics of pension business and competition

Characteristics of traditional insurance include factors such as randomness, risk of loss or damage, risk allocation between several parties, a separate subject and matching between price and risk. Randomness means that it is not known whether a certain risk will or will not be realised. Loss or damage can be material, but is usually measured by its economic value. Pensions under TyEL and YEL cover the risk of losing ability to work, not only because of ageing, but also because of many other reasons. The economic value of a realised pension risk is a decrease in income, and the

purpose of earnings-related occupational pensions is to ensure decent income after a damage have occurred. (Kivisaari & Rantala 2014, 73-75; 365) Therefore in case of pension insurances, insured risk is very different from traditional insurable risks. The risk is almost certain as people lose ability to work sooner or later, in a way or another. This makes a pension insurance a very exceptional product.

Other characteristic of statutory pension business is that it is operated under heavy legislation, regulation and supervision. As explained earlier, the Finnish pension companies execute highly important mission of securing pensions by managing contributions, benefits and investment of enormous pension funds. (Kivisaari & Rantala 2014, 367) As Rajaniemi (2015, 129) points out, execution of such an important social role is not insignificant. The legislation explained earlier the second chapter concerned pension companies' roles and responsibilities. There is also other legislation that conducts specifically operational functioning and investment activities. For example, TyEL and Administrative Procedure Act set requirements for handling procedures and due dates, advisory and service responsibilities as well as decision making regarding pension applications. The purpose is to ensure proper administration of statutory pensions. (Kivisaari & Rantala 2014, 367) Because pension companies rehearse competitive business, they are also covered by competition legislation, that is aligned with EU competition legislation. However, Finnish pension companies have a special status when it comes to EU competition legislation. The EU Life Insurance Directive is not applied to Finnish pension companies, but this means that they are not allowed to practice any other insurance business besides statutory occupational pension insurance. Additionally, Insurance Supervisory Authority gives more detailed orders instructions concerning financial statements, actuarial principles, solvency and underwriting reserves. Purpose of these regulations is to ensure pension security and safety investment activities. This means good diversification, realisation and yield of investments. (Hietaniemi & Ritola 2007, 43-45)

Insurance companies have a responsibility of covering future damages that have been insured by the company. In order to carry out this responsibility, insurance companies need to put aside funds for anticipated losses in the future. These assets are called technical provisioning and are registered in the insurance company's balance sheet. (Kivisaari & Rantala 2014, 240) Technical provisioning of pension companies consist of the funded pension contributions. Only occupational pensions,

work incapacity and unemployment pensions are partly funded pension types under TyEL. Pension contributions increase pension liability and pension benefits release them, therefore technical provisioning lives all the time. Total technical provisioning is affected by a solid nominal rate of 3 % and an adjustment function, which depend on the average solvency between pension companies. Investment funds of pension companies cover the technical provisioning, which underlines the essentiality of secure investment management. Difference between technical provisioning and investment funds is called solvency margin, which is commonly used for investment risk management. As noticed, technical provisioning affects pension companies' investment activities, but also client relationships. Depending on the solvency margin, pension companies can even give its clients bonuses. (Hietaniemi & Ritola 2007, 71).

Competition in statutory pension insurance markets has its own characters, and as a business pension insurance is very far from typical market activities. Firstly, the core product is basically the same for all companies operating in the market, and it is the statutory earnings-related pension insurance under TyEL. Secondly, as the insurance is statutory, customers of pension companies cannot choose whether they want to have an insurance or not. Instead, they can choose who they want to buy it from. Therefore, in other words customer of pension companies cannot choose the product, but they can choose the provider. Therefore, the core product is not a competitive weapon on pension insurance markets. (Johansson & Sorsa 2010, 211) Neither is price, as it is also determined by the law. Prices include most maintenance expenses, which are even partly distributed between pension companies. (Sosiaali- ja terveysministeriö 2002, 23) As it can be noticed, there is a very limited number of competitive weapons on statutory pension insurance market. Even Finnish Competition and Consumer Authority has taken notice of absence of competition in statutory pension insurance market. (Johansson & Sorsa 2010, 211)

Even though pension companies' competitive weapons are limited, there are still some means, that pension companies can use in order to favourably distinguish in competition. Instead of traditional competitive weapons mentioned above, competitive advantage is mainly pursued by effective production. As already told earlier, efficiency and well-profitable investment management give pension companies a chance to give out bonuses to their customers. These bonuses can be used for succeeding in competition, as a good level of bonuses give a pension competitive advantage by

facilitating customer acquisition. Therefore, investment management is the most important competitive weapon and component of efficient operating of pension companies. In other words, good profits and solvency are factors that ensure a good level of customer bonuses. Besides efficient operating and investment management, pension companies can benefit by distinguishing by the quality of their additional services, such as work-related wellbeing services. (Rajaniemi 2015, 89) More detailed information about additional services is provided in the next sub-chapter.

There are some other competition factors concerning customers of pension companies. Purpose and activities of pension companies are mainly targeted on end customers, in other words on the pension insured employees. However, excluding self-employed persons, insured employees are not in decision making position in competition. This is why a pension company cannot affect all its customers directly and therefore choose its customers. (Sosiaali- ja terveysministeriö, 2002) In addition, pension companies are obliged to give and keep valid any obtained TyEL or YEL insurance. A statutory pension insurance can only be terminated by a pension company in case its corporate customer, an employer, has not informed any salaries to have been paid during a previous year. In this case a pension company is still obliged to ensure that the employer is not responsible for having a statutory pension insurance. Instead, an employer can choose and change its pension company with a written notification in certain time limits. (Employees' Pension Act 9.5.2006/ 395)

3.2 Offerings of pension companies

As clarified earlier, the main mission of pension companies is to collect pension contribution, manage pension funds and pay pension benefits. There are different types of insurances under TyEL, which can be defined as core products of pension companies. In this thesis, services related to these core products are categorised as core business services. There are also various other services that pension companies offer, which are categorized as additional services. The two following sub-chapters will take a look at offerings of Finnish pension companies including core business services and additional services.

3.2.1 Core business services

Core business services cover management of different types of TyEL pensions. According to the current pension legislation, there are five different pension types; old-age pension, disability

pension, part-time pension, survivor's pension and rehabilitation benefits. The two last of these can be paid partially. Survivor's pension is divided into surviving spouse's pension and orphan's pension. (Finnish Central of Pensions 2016a) The different pension types and volumes are listed in the table below.

Table 2. Earnings-related pensions by 2015. (Finnish Central of Pensions 2016)

	MEN	WOMEN	TOTAL
All pension types	642,700	795,300	1,438,000
Pension based on own career	630,900	760,800	1,391,600
Old-age pension	544,300	673,800	1,218,100
Disability pension	81,400	79,700	161,100
Part-time pension	4,900	7,200	12,100
Special pensions for farmers	5,600	9,700	15,300
Surviving spouse's pension	40,000	216,100	256,000
Orphan's pension	7,000	6,600	13,600

All pensions must be applied from a certain pension company, which is determined according to the so called principle of last institution. According to this principle, the pension company that has insured the most occupational income during the last two years before the person's retirement. This means, that even though a person's occupational income would have been insured in several different pension companies during his career, the last institution is responsible for handling the pensions. This applies to all pension companies in the Table 2, so it does not matter if a person has had both public and private employments during his time at work. The responsible pension company both grants the pension and handles benefit payments. As it can be seen in the table, old-age pensions are clearly the largest part of pensions handled by pension companies. The age limit of old-age pensions is 63-68 years. If a person decides to continue working in even older age, the pension is called postponed old-age pension. Part-time pension can be granted earliest at age of 61,

but from the beginning of 2017 part-time pension is no longer available as it is removed by the new pension reform. (Työeläkelakipalvelu 2014)

According to the current legislation, disability pensions can be granted to a person in age of 18-63, if he meets certain requirements. A person has a right to get disability pension if he has lost at least 40 % of his working ability and the working disability has or is estimated to last continually at least one year. When estimating the level of disability, a person's ability to be employed in the future is taken in consideration and to gain income in an employment that he can reasonable be demanded to do. In this case definition of reasonable includes factors such as age, education, earlier experience and place of residence. Working disability estimations and disability pension decisions are always based on a medical examination. If a person is discovered as partly disabled, can he still do work an amount that correspond to the rest of his working ability. (Työeläkelakipalvelu 2014)

Instead of disability pension, rehabilitation benefits are always considered as a first choice in case a person has lost a part of his working ability. This means that a pension company must examine if this person has a right to occupational rehabilitation provided by the pension company or any other rehabilitation provider such as occupational health provider. If a person has a right to get occupational rehabilitation provided by a pension company, he can either get a full or partial rehabilitation benefit depending on the level of the rehabilitation need and other pension benefits. Occupational rehabilitation is meant to help long-term disabled people to get back their working ability in order to be able to continue working and to avoid disability pension. In short-term disabilities, rehabilitation benefit and disability pension are replaced by sickness benefit. (Työeläkelakipalvelu 2014)

Survivor's pension is meant to compensate the decrease in income of a family, that has lost a parent and carer. Survivor's pension is based on the dead parent's occupational pension. This so called base of survivor's pension is divided between the spouse and the under 18-year-old children, so that at maximum the total amount of survivor's pension equals the dead parent's occupational pension. The total amount can be smaller, depending on surviving spouse's own pensions and other income. (Työeläkelakipalvelu 2014)

3.2.2 Additional services

Besides core business services, there are several additional services provided by pension companies. Additional services presented in this thesis, are separate from core business services and are not services that are essentially needed for implementing the main mission of pension companies, securing and executing pension cover. These services are divided in five categories; working ability services, work and wellness services, occupational rehabilitation, real estate services and financing services. As it can be seen in the Table 3, all pension companies, excluding Pensions Alandia, provide additional services in all five categories. Therefore, additional services are important business factors in both private and public pension market.

Table 3. Additional services of pension companies (Pension companies' websites 2016: Elo (25.10.2016a-e), Etera (25.10.2016a-c), Ilmarinen (25.10.2016a-c), Keva (25.10.2016a-c), Pensions Alandia (25.10.2016a-b), Varma (25.10.2016b-c), Veritas (25.10.2016a-c))

	WORKING ABILITY SERVICES	WORK AND WELLNESS SERVICES	OCCUPATIONAL REHABILITATION	REAL ESTATE SERVICES	FINANCING SERVICES
ELO	✓	✓	✓	✓	✓
ETERA	✓	✓	✓	✓	✓
ILMARINEN	✓	✓	✓	✓	✓
PENSIONS-ALANDIA					
VARMA	✓	✓	✓	✓	✓
VERITAS	✓	✓	✓	✓	✓
KEVA	✓	✓	✓	✓	✓

The objective of working ability services is to prevent employees to lose or to worsen their ability to work. These services are designed to help customer organizations to actively measure and monitor working ability of their employees. There are also services that help pension companies' customers to take actions, if they notice that some of their employees are at risk of losing or worsening their ability to work. In conclusion, working ability services focus on preventing

employees to lose their working ability, whereas work and wellness services are meant to improve ability to work. These services help customers, both personal and corporate, to enhance working conditions, management and leadership manners, wellness consciousness and employment satisfaction. The objective of these work and wellness services is to improve overall wellbeing at work and working efficiency. (Pension companies' websites 2016: Elo (25.10.2016a-e), Etera (25.10.2016a-c), Ilmarinen (25.10.2016a-c), Keva (25.10.2016a-c), Pensions Alandia (25.10.2016a-b), Varma (25.10.2016b-c), Veritas (25.10.2016a-c))

Forms of both working ability services and work and wellness services vary between companies. Nevertheless, both service categories include mostly information tools such as educational publications, guides and training materials in different topics. There are also encouraging customer stories and videos shared as well as helpful tools in pension companies' websites. Most of these materials and tools are web-based and available on pension companies online and mobile service channels. Many companies offer even consultation and implement development programmes with customers in order to improve efficiency and wellbeing at work. In total, these working ability and wellbeing services are made very visible in pension companies' websites. (Pension companies' websites 2016: Elo (25.10.2016a-e), Etera (25.10.2016a-c), Ilmarinen (25.10.2016a-c), Keva (25.10.2016a-c), Pensions Alandia (25.10.2016a-b), Varma (25.10.2016b-c), Veritas (25.10.2016a-c))

In this thesis occupational rehabilitation services are defined as non-financial rehabilitation benefits offered by pension companies. These services are characterized as advice and support in case a person has lost a part of his ability to work. The objective of occupational rehabilitation services is to help disabled customers to find new employment, so that they would be capable to attend working life despite worsen ability to work. These services are offered in different forms, mainly coaching and supporting in switching or learning a new job. There are also supplementary training and different courses provided to help customers to fill their skill gaps when trying to find an employment that is suitable for their health. In addition, other forms of occupational rehabilitation are work trials and supportive services for those, who return to work after long-term sickness. (Pension companies' websites 2016: Elo (25.10.2016a-e), Etera (25.10.2016a-c), Ilmarinen

(25.10.2016a-c), Keva (25.10.2016a-c), Pensions Alandia (25.10.2016a-b), Varma (25.10.2016b-c), Veritas (25.10.2016a-c))

Pension companies own large amount of different real estate properties such as office and apartment buildings. Therefore, real estate services are actually rental services for both corporate and personal customers. Most companies have a real estate agency as a partner to run rental business of office spaces and apartments. Office space rentals help especially corporate customers in running and developing their business. Besides these real estate services pension companies help corporate customers with their financial services. Service offerings in financial service category include a wide range of financing solutions such as investment loans, direct equity investments and other tailored financing solutions. Financing solutions are meant to help corporate customers for example in need of working capital, making investments or business acquisitions. (Pension companies' websites 2016: Elo (25.10.2016a-e), Etera (25.10.2016a-c), Ilmarinen (25.10.2016a-c), Keva (25.10.2016a-c), Pensions Alandia (25.10.2016a-b), Varma (25.10.2016b-c), Veritas (25.10.2016a-c))

3.3 Customer segmentation of pension companies

Customer segmentation means dividing customers in smaller segments instead of creating one large mass market to all customers. The key is to identify customers that share similar needs and preferences, and then group these customers together into a customer segment. Customers in a customer segment do not need to have identical preferences, but the preferences need to be at least roughly similar. By using customer segmentation, companies can offer differentiate by offering different products and services to different customer segments in order to serve the customers in a better way. Therefore, customer segmentation creates benefits to customers as they can get better targeted services and products to meet their needs and preferences. Additionally, companies can benefit from increasing profitability and sales. Segmentation can be made in many ways, for example by customers' characteristics, but the best results are obtained if segmentation is done by using needs and preferences that are essential purchase decision drivers. (Kotler 2009, 334)

Pension companies serve several different customer types at the same time, and the most significant segmentation is between corporate and personal customers. As explained earlier, corporate

customers choose their pension insurance company and personal customers are determined by the principal of last institution. Also, corporate customers pay pension contributions and pension benefits are distributed to personal customers. Therefore, it can be thought, that the customer segmentation between personal and corporate customers is made quite naturally. Yet, the two main customer groups can be divided into smaller customer segments, and each pension company has a right to decide what kind of segmentation they want to have. Therefore, specific segmentations decision can vary between companies.

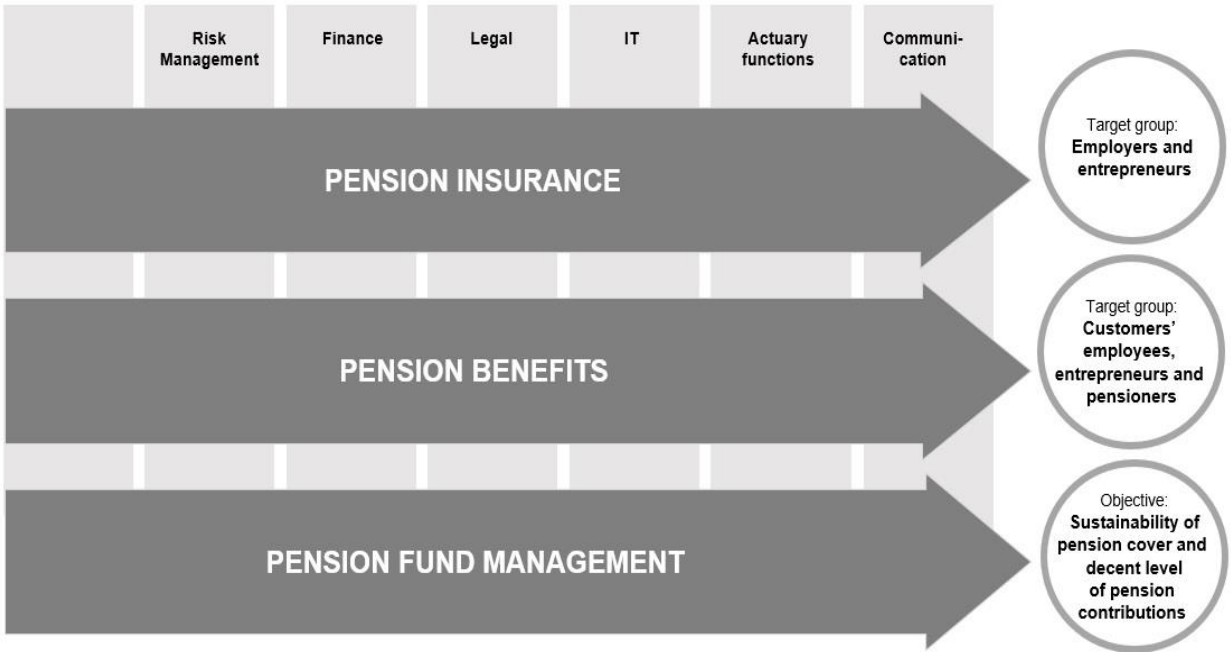
Corporate customers include companies, who are obliged to have TyEL pension insurance. In case of these TyEL customers, segmentation is commonly based on the number of employees or, in other words, on the number of pension insured persons in the customer company. Therefore, segmentation is made by customers' characteristics. By this kind of segmentation, corporate customers are roughly segmented by their company form as well. According to Suomen Yrittäjät (2015), approximately 93 % of all companies in Finland are so called micro companies with 1-9 employees, 5,5 % are small companies with 10-49 employees and 0,9 % are medium sized companies with 50-249 employees. Only 0,2 % of around 283 00 companies in Finland are categorized as large companies with over 250 employees. Yet the largest part, 36 % of all employees, work in these large corporations. Micro companies come as second biggest employers with a share of 26 %. Entrepreneurs are usually in a segment of small companies, and yet entrepreneurs are bipartite customers. On the other hand, they pay pension contributions just as corporate customers, and on the other hand they receive pension benefits just as personal customers when retiring. Also, as explained earlier, their pension insurances are covered by YEL, not TyEL.

3.4 Main processes and supporting functions of pension companies

As an organization, pension companies operate as other large commercial corporations. Pension companies are allowed to choose their organizational structure themselves, but the main processes are the same as well as the supporting functions, that are needed to run the main processes. There are three main processes that are supported by different supporting functions. Most of the supporting functions are not directly related to insurance or especially typical for just pension industry. As in other large corporations, there are risk management, finance, legal, IT and communication departments and actuary functions in pension companies. Actuary functions in

pension company does not only handle archiving, but is most of all responsible for making insurance mathematical pension calculations and therefore one of the most important supporting functions. (Kotila 2012)

The three main processes are pension insurance process, pension benefit process and pension fund management process. Pension insurance process is targeted to employers and entrepreneurs, and include pension insurance management such as sales, pension insurance contract management and collection of pension contributions. Pension benefit process is targeted to employees of corporate customers, entrepreneurs and pensioners. This process is the pension insurance claims process including paying pension benefits for different customers. Fund management process does not have a direct target group, but a clear object instead. A decent level of pension contributions and sustainability of pension cover are obtained by steady pension fund management process. (Kotila 2012) The supporting functions, the main processes and target groups od the processes are illustrated the Picture 4 below.



Picture 4. Basic functions of pension companies (Kotila 2012)

4 WORKFORCE TRANSFORMATION

Workforce transformation is a multidimensional phenomenon caused by several change factors. Working people themselves are changing in forms age and other demographical factors, but so are the requirements set to them. Because of several other change factors such as digitalization, globalization and raise of business ecosystems, companies are having new needs for their workforce. Working people need to adapt themselves, learn and create new skills in order to stay relevant from business perspective. But people are not the only members of workforce. Technological development enables digital workforce, whose share of the total workforce is increasing. Intelligent automation including robotics and artificial intelligence play a significant role in the workforce transformation. This chapter takes a closer look to each change factor of workforce transformation starting from examining technological development. After that business related change factors are explained, and last but not least a look at demographical development is taken.

4.1 Technological development

Technology have several definitions, and the most commonly technology is conceived as electronical devices or information technology inventions. It is also much more. The term ‘technology’ covers also processes and practices that are used in producing services and products. Tightly expressed, technology is applying scientific information to practical purposes. Technological development is usually a result of small improvements of old technologies and technology applications, but it can also come in forms of radical innovations. (Hiltunen & Hiltunen 2014, 23-25) In this thesis the focus of technological development examination is on intelligent automation and digitalization.

4.1.1 Digitalization and digital ecosystems

There is no unambiguous or fully qualified definition for digitalization. Instead, the term is fairly freely used to describe many different things. Basically digitalization is a phenomenon that comes from digitizing “just about everything”, as Brynjolfsson and McAfee (2014, 57) explains it. This means turning all types of media and information, including videos, photos, maps, text and other data from for example wearable sensors into native language of computers – ones and zeros.

Transferring information and knowledge has become easy and extremely fast because of digitalization, and therefore the phenomenon has speeded up innovation. (Brynjolfsson & McAfee 2014, 61-62) Nevertheless, digitalization does not only mean turning different types of information in digital form. It is a comprehensive change in companies operating models and businesses, customer behaviour and market dynamics. (Ilmarinen & Koskela 2015, 17)

Besides internet, digitalization is considered as the most important technological change factor that shapes our society and consumption. It has created totally new ways of producing and distributing both material and digital goods. Digital goods are digitally produced and consumed immaterial goods with a specific characteristic of having marginal costs of production close to zero. After creating the first version of a digital product the rest of production is just copying. The consumption of digital goods is increasing all the time, and their significance in business development cannot be neglected. Both material and immaterial goods are traded in digital markets, but in case of digital products, distribution can happen almost instantly and without almost any costs. (Pohjola 2014, 4; 7) Consequently, from production perspective digitalization is making products and services "free, perfect and instant" (Brynjolffson & McAfee 2014, 63).

Even though digitalization has facilitated and cut costs in many business process steps, it has not made success easier as digitalization has changed the way companies compete with each other. Interesting in digital goods is that in most cases utility or value of a good increases as the amount of producers increases. At the same time producer revenues increase with the same logic. This kind of entity with a large number of producers and consumers is called an ecosystem. Digital ecosystems are enabled by digital platforms, that are interfaces between producers and consumers, and through which digital goods are offered and consumed. Digital ecosystems have seeded up fading of industry boundaries. A digital platform makes it is easy to consume all kinds of digital goods cross industries as a computer does not separate zeros and ones according to industries. In digital economy, platforms replace traditional industries and business sectors, which changes competition dynamics completely. (Pohjola 2014, 7)

As mentioned, digitalization and business ecosystems challenge companies to rethink their strategies and to operate differently. Customers crave for more individual service and product

offerings, and new competitors from cross industries appear continuously. A combination of social and technological innovations together with increasing cooperation cross industries will create major changes in the Finnish business environment (Alqvist, Kuusi & Linturi 2013, 14). Some industries and businesses are relatively easier to turn digital. For example, insurances and other immaterial goods and can be transformed in digital form, but because of this, they are facing rapid increasing competition. On the international level many virtual community service providers have started to offer financial services aside of their traditional service offerings. Additionally, fading of industry boundaries can clearly be seen in Finland as well. As an example of cross industrial operation, a Finnish retail store has started to offer financial services and a Finnish bank healthcare services. (Pohjola 2014, 8)

4.1.2 Intelligent automation

In the early 20th century, there were no computers as we know them nowadays. Back then, computers were actually not machines at all. Instead, people handling calculation and documentation had a job title called 'computer'. Over the decades, innovations replaced people with machines in these routine tasks, but the name 'computer' stayed. At first, computers were mechanical machines, then electro-mechanical and nowadays computers are digital. Since the mechanical computer was invented, labour has been divided between humans and machines. In the digital era, computers are becoming more and more advanced, more capable of doing various tasks. Because of this development, intelligent automation is changing the division of labour between humans and machines. (Brynjolfsson & McAfee 2014, 15-16) In this thesis intelligent automation is defined to cover robotics and artificial intelligence.

A robot is a machine that is capable of carrying out different tasks or series of tasks, that it has been programmed to carry out. In other words, robots are mechanic or virtual actors, whose actions are conducted by a computer and carried out accordingly and automatically. There are two components that form a robot – mechanic frame and algorithm. Both can be transformed in different forms and combinations in order robot to serve its purposes. There are several different kinds of robots, for example humanoids, nano-robots and industrial robots, working in the society. Industrial robots are actually well adopted in manufacturing, but even entertainment industry and households are becoming all more interested in using robots. In this, technological development has facilitated

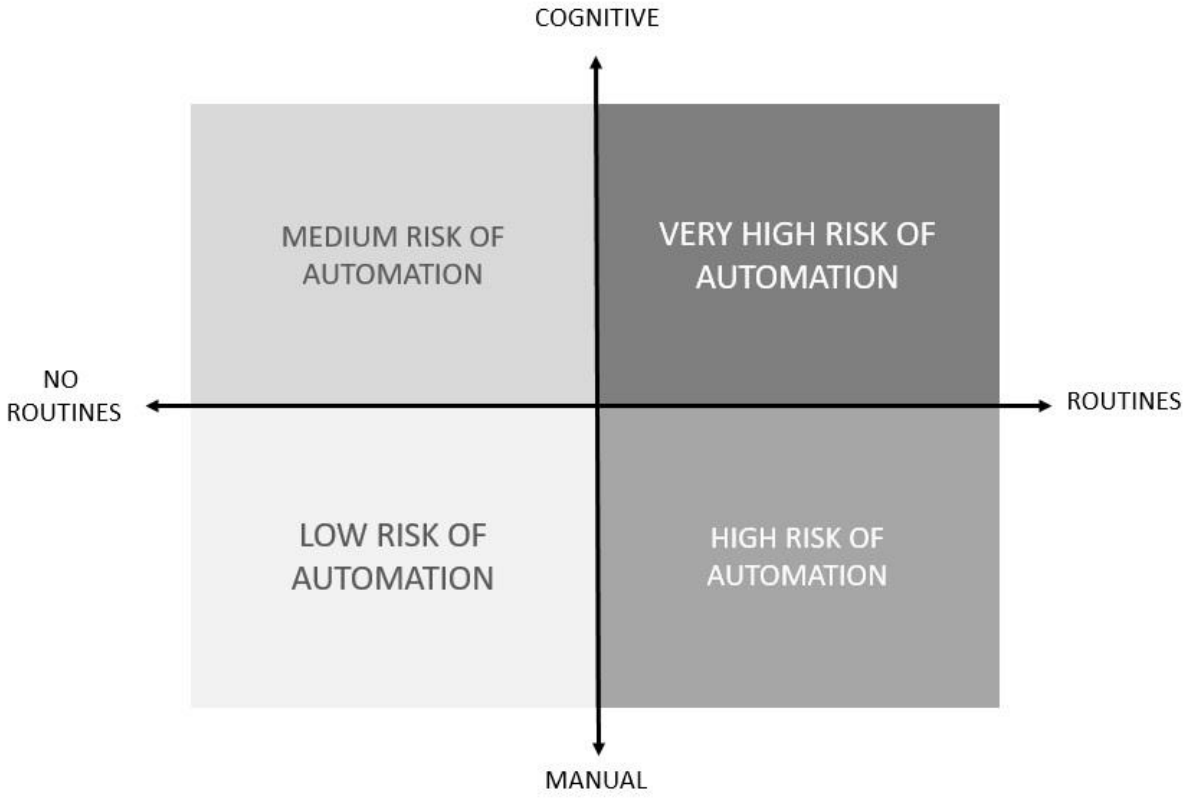
development. Especially advancements in battery, sensor and computer size development have had accelerating effect on robotics. (Hiltunen & Hiltunen 2014, 166-167; 176-177)

There are some tasks that robots are better at than people. Robots can bring for example accuracy and raw power into work that people lack of. Machines are also more capable of carrying out their tasks in tough or dangerous circumstances, and do not avoid or lose concentration in boring routine tasks. (Hiltunen & Hiltunen 2014, 177) There are also many tasks, that used to be considered as purely people's domain but are increasingly being carried out by robots. The shift has happened relatively recently as technological development and digitalization are racing ahead with accelerating speed. (Brynjolfsson & McAfee 2011, 9) For now, a machine mind has still limited capabilities. Especially problematic for a robot has been identifying and understanding characters, recognising patterns and communicating in complex situations and relationships. Additionally, robots lack of common sense and intuition, which are also related to disability to understand. (Brynjolfsson & McAfee 2011, 23; Hiltunen & Hiltunen 2014, 167)

However, machines are getting better and more advanced. Scientist aim at creating artificial intelligence, a machine that can learn and develop itself, and is capable of solving problems and preindicate its actions flexibly. In research field, artificial intelligence is commonly divided into two types – strong and weak. Weak artificial intelligence tries to solve problems by using different artificial intelligence techniques. Strong artificial intelligence in turn tries to copy the cognitive processes that people use in problem solving. At least for now, scientists have not been able to create strong artificial intelligence, but weak artificial intelligence is being used for countless purposes. Unlike the name of the classification, the weak artificial intelligence is not measure up with its name. Super computers and algorithms can for example make investment decisions, write news, make art and do research by themselves. Processing and calculation capacities of these intelligent machines are enormous. For example, Watson, a super computer created by IBM, can carry out complex pattern matching, engage advanced communication and analyse 80 000 billion mathematical operations per second. (Hiltunen & Hiltunen 2014, 182; 213-214)

Even though machines would not become as intelligent as people, their capabilities increase and so do their usability and value in economy. Brynjolfsson and McAfee reminds (2014, 2013), that

"one thing we've learned about digital progress is never say never." As machines become more and more intelligent, more tasks can be done by using automation. In fact, with the current pace of innovation, it is hard to ensure that there would be any task that would not be automatized in a way or another. (Brynjolfsson and Mcafee 2014, 203) Additionally, performance of robots is improving all the time, whereas collective efficiency of human workers does not change over time. As robots gain new capabilities, "it becomes harder to justify employing humans, even in jobs that require specialized skills or knowledge". (Nourbakhsh 2015, 27) It is estimated that the speed of technological development will not slow down any time soon, meaning that intelligent machines will most likely face new influential advancements during the upcoming decade. This means that in some occupations and sectors, many jobs will most likely disappear. Digitalization even increases the possibility that machines take over mental and cognitive tasks that have been considered as humans' domain. (Brynjolfsson & McAfee 2011, 38; 52)



Picture 5. Risk of automation by different task groups (Pietikäinen et al. 2014, 77)

As explained earlier, tasks that include a lot of routines, no matter if they are cognitive or manual tasks, are easier to be automatized. Therefore, people who are having jobs that include that kind of tasks, are easier to be replaced by a robot or artificial intelligence. The different task groups in relation to the risk of being automatized are illustrated in the Picture 5 above. Customer service and office workers are for example under the most urgent threat of becoming replaced by robots as the jobs are cognitive and include a lot of routines. People handling more complicated tasks, that require advanced thinking and complex communication, are not under as big threat the previous group of workers. At least for now, this group can benefit from the capabilities of intelligent machines. With the enormous processing and calculation capacities, intelligent machines can assist in, for example, decision making by producing supportive analysis. Yet, it is estimated that even these tasks could be automatized in the future, which is why they are categorized under medium risk of automation. Only tasks that are manual and do not include routines are harder to automatize, and therefore they are under low risk of automation, at least for now. (Pietikäinen et al. 2014, 76-78)

4.2 Globalization

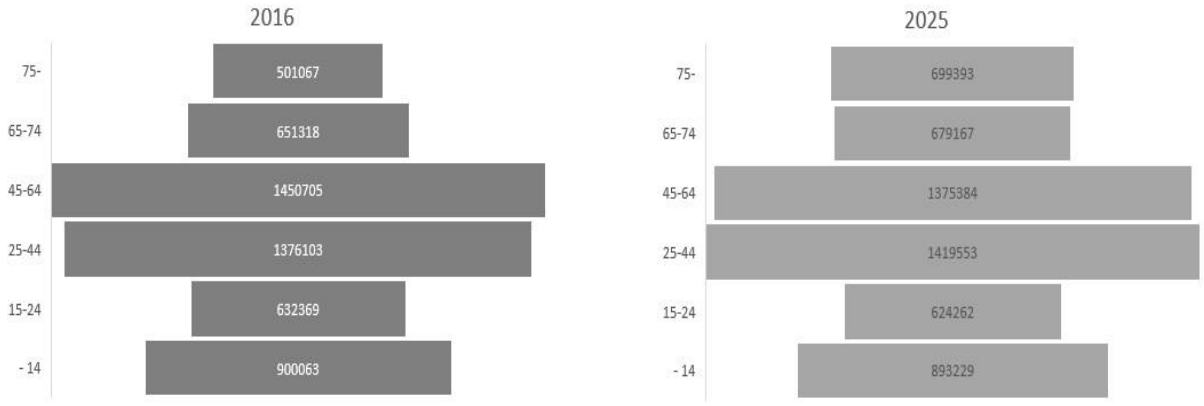
Like digitalization, globalization has several different definitions. It is described as "a set of technologies, institutions and networks operating within, and at the same time transforming, contemporary social, cultural political and economic spheres of activity" (Schirato & Webb 2003, 21). According to Ministry of Economic Affairs and Employment (2014) globalization is the phenomenon of companies expanding their operative environment making trading all more international, and therefore causing country boundaries to fade and work to fragment. Consequently, globalisation means that companies' operational environments are not limited to the closest regions, that competition and markets become global instead of local. For 40 years ago, 30 percent of global gross domestic product was international, but since then the number has doubled up to 60 percent (Paasschen 2015, 176). In this transformation, technology has been a facilitator by making global networking easier, and therefore conduced globalization. Through communication technologies, it has become easy to transfer information and capital all around the world. (Schirato & Webb 2003, 46-47)

Together with internet, digitalization has accelerated globalization to a whole new level. Because of this, domestic companies are under even heavier global pressure than before. In the financial service sector for example, globalization and global competitors are seen as the biggest threat for the domestic operators. Technology companies and start-ups are considered especially concerning and threatening competitors. (Pohjola 2015, 20) Globalization has therefore intensified the overall competitive situation on various markets, and international trade contracts and deregulation have supported this development (Chien-Chiang, Meng-Fen & Shih-Jui 2015, 589). Yet, global partnerships and wide networks become all more important in the future as global dependencies become more effective (Valtioneuvoston kanslia 2013 ,9). Global value chains are one example of global dependencies. For long time, companies have decentralized work and production around the world by for example outsourcing. In the future global value chains reach a new level of diversification. Until now companies transferred entire operations or production functions, but in the future individual work assignments will be diversified all around the world. This kind of mobility will for most parts be enabled by technology. In conclusion, increasing globalization is not only putting companies in a new competitive situation, but also making work, workforce and labour markets more international. (Pietikäinen et al. 2014, 55-57)

4.3 Demographical development

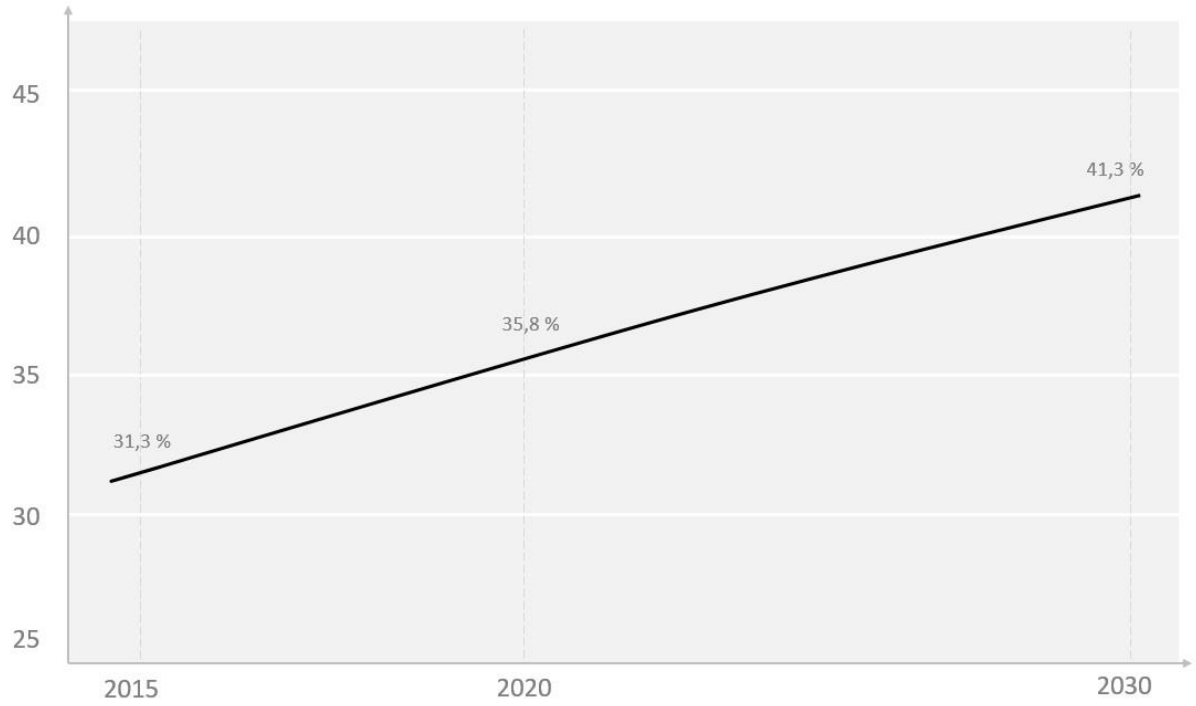
Demographical factors can be defined as population characteristics. This kind of factors are for example age, multi-culturalism and education, which are examined in this sub chapter as factors that affect workforce strongly in the future. There is a specific demographic phenomenon that has caused especially big concerns regarding fiscal sustainability. As in many other industrial countries, population is ageing in Finland. There are two factors that are causing the change – decreasing fertility and longevity. Decreasing fertility means that fewer babies are born causing population to age and diminish. The number of babies per woman needed to keep population constant, the replacement level of fertility, is 2.1, but since 1970s it has been below 2 in Finland. In 2020 the fertility rate is estimated to be 1,87. The phenomenon is not new, as fertility has decreased since 1960s, because of individual economic constraints or changes in family formation and lifestyle preferences. Longevity is in turn a great societal accomplishment of improving health care and living standards, that has caused that people can live longer. (OECD 2015, 153-156) In 2015 lifetime expectancy at birth was 84,1 for women and 78,5 for men in Finland (Findikaattori

2016). The life time expectancy has raised steadily for decades, and the trend seems to continue (Findikaattori 2016, OECD 2015, 157).



Picture 6. Population structure of Finland in 2016 and 2020 (Statistics Finland 2015)

Together decreasing fertility and increasing longevity cause the Finnish population to age. This means that there are increasing number of older people and decreasing number of younger people in Finland. The phenomenon can be identified in the population charts of Picture 6 above. In a decade it is estimated, that the two oldest age groups grow significantly. As it can be seen in the charts, the biggest change happens in the age group of people above 75 years, that is estimated to grow with almost 200 000 persons. This is especially concerning as the two oldest age groups include people, that are mainly inactive at labour market because of retirement preferences or disabilities to continue to work. This is causing pressure to fiscal sustainability of the national economy and sustainability of the Finnish pension scheme, because employment plays a highly important role in financing the economy and the pension scheme. Old-age dependency ratio is the ratio between the number of persons aged 65 and the number of persons aged between 15 and 64. The chart below in Picture 7 shows the problematic, ascending trend of protected old-age dependency ratio in Finland, meaning that in the future there are all fewer people in working age per each person in retirement age. (Eurostat 2016) The effective age of labour market exit highlights the problem, as in Finland the age is approximately three years lower compared to the average number in OECD countries. (OECD 2015, 162-163).



Picture 7. Projected old-age dependency ratio (Eurostat 2016)

In order to obtain and maintain steady economic growth, fiscal sustainability and societal welfare in Finland, more workforce is needed. Consequently, there are two potential groups for solving the problem. Firstly, migration can be supportive solution to the problem, as it can compensate production inefficiencies and the decrease in work contribution level by bringing more workforce from abroad. (Findikaattori 2016) The total influence of migration in obtaining the targets depend on the ability to employ immigrants. Because of gaps in language and other skills, employment rate among immigrants has for long lower than among native people. However, the employment level has improved and labour market status of immigrants has become steady. (Busk, Jauhiainen, Kekäläinen, Nivalainen & Tähtinen 2016, 21-26) From the beginning of 21st century, there has been an ascending trend in the net immigration of Finland. In 2015 net immigration was 12 441 persons. (Findikaattori 2016) Secondly, retirees and elderly people can partially compensate impending workforce shortages. As older people are going to be able to maintain all better physical and mental health in the future, employment or re-employment in old age can offer suitable solutions for supporting the fiscal sustainability. (Deller, Liedtke & Maxin 2009, 137-138)

Another demographic factor that affects labour market and workforce is education. According to Le Gerrec (2014, 343) increasing longevity encourages people to make long term investments such as education, that increases its value over time. However, according to Alqvist, Kuusi and Linturi (2013, 174) education and knowledge level in Finland and other EU countries will improve, but relatively less than in rest of the world. The main reason for this is that skill and knowledge needs change rapidly and become more diverse. Skill gaps grow especially because of stiff education system that creates hiders learning and knowledge transferring. The current education system does not support individual progress and learning, which is why learning is not effective at the moment. Because of the system's disability to acknowledge different personal needs, studying motivation is mostly based on getting a degree, not learning itself. (Alqvist, Kuusi & Linturi 2013, 27) Therefore Finland is facing serious challenges regarding education and skills of its workforce. In fact, the biggest challenge in improving skill level in Finland is the question of, how to ensure continuous learning after basic education in order to maintain relevant skill set and knowledge level throughout all careers. (Working life 2020 programme 2012, 21)

4.4 Change of business needs and skills

Because of the changes in the operational environment, new requirements and standards are set for skills and knowledge. Companies and their workforce are forced to update their tactics in order to ensure their survival and success. Needed competences are more and more unpredictable as the operational environment requires increasing ability to react fast in complex situations. People are more independent and consumers all better informed. All together these factors require companies and workforce to be able handle multiple skills and to be able to understand the market and its market dynamics. Therefore, continuous learning has become more valuable than ever. Earlier learning and training could be implemented in long-term linear training programs, but the unpredictability of needed skills have made this kind of learning models irrelevant and dangerous. Learning has to be organized a new in a more reflective, interactive and continuous way, that takes individual needs into consideration. Learning has therefore become a necessity for both employers and companies, and a most important dimension of leadership. (Pentikäinen et al. 2014, 90-91)

Besides learning, digitalization and fast pace on markets change needed skill palette in the future. and some of the skills have already been identified. In digital economy, an endless amount of data

is produced continuously. In order to benefit from all this information companies should build capabilities to handle and analyse it. Therefore, data mining, analytical thinking and ability to compile and to produce valuable information have become some most valuable skills. Young Finnish people have top class digital, technical and problem solving skills even on the international level. Unfortunately, in Finnish companies it seems to be so, that the gap between digital skill requirements and the actual use of digitally skilled people is larger than in most industrialized countries. This means that on average, Finnish companies are less capable to benefit from digitalization and accessibility to large amount of data. Additionally, middle-aged and older people do not have as advanced digital skills as needed. (Pentikäinen et al. 2014, 28-29; 35-36; 70)

Growing importance of internationality and wider networks challenge companies to acquire workforce, whose skills equal global standards but at the same time has ability to specialize. Additionally, comprehensive communication and team work skills are needed in global environment. Together with other Nordic countries Finland is a forerunner in flexible and self-conducting working methods such as team work. However, in order to succeed in continuously transforming environment, Finnish companies need to improve their other organizational skills. In the future, organizations need to be more agile, process and customer oriented and networked. Also decentralized decision making and continuous transformation improve capabilities to increase efficiency and benefit from digitalization. These organizational skill factors require workforce ability to tolerate change, to take more responsibility and to make decisions more independently on all organization levels. (Pentikäinen et al. 2014, 70; 95-96)

4.5 Changes in forms of employment

New markets and ways of doing business create new forms of employment. Because of technological development, globalization and demographic changes in the Finnish population, a new level of flexibility and adaptation is needed from employers and labour markets. Brynjolfsson and McAfee (2016, 143-144) calls this “on-demand” economy, which is related to the needed flexibility on the labour market. This kind of development has led to new atypical forms of employment and growing mobility of workforce. Even though traditional, permanent and fulltime employment is still the most common way of working, several simultaneous part-time positions and self-employment have become all more popular. New forms of employment are accelerating

mobility. It is estimated that in the close future workforce moves across not only regional boundaries but also industrial and occupational boundaries. This means that instead of traditional linear careers, people are shifting seamlessly between different employment statuses. (Pentikäinen et al. 2014, 21)

The major change that has occurred in the Finnish employment structure during the last 15 years, is that working in part-time positions and self-employment have increased the most of all forms of employment. Actually, self-employment has increased relatively the most, even more than working part-time in traditional employment relationship. Self-employment include private entrepreneurs, freelancers and people who finance their work by scholarships. The new forms of employment do not really change the overall employment structure of Finland, which has stayed steady for long. As mentioned earlier, traditional permanent employment is most likely going to keep its status as the most common form of employment. (Pärnänen 2015, 242; 244) Instead, working part-time and having several short-term employments besides long-term employments are going to increase. Because people can have several overlapping careers at the same time, working hours, working methods as well as positions are most likely becoming more variable. (Pietikäinen et al. 2014, 68-69)

5 EFFECTS OF WORKFORCE TRANSFORMATION

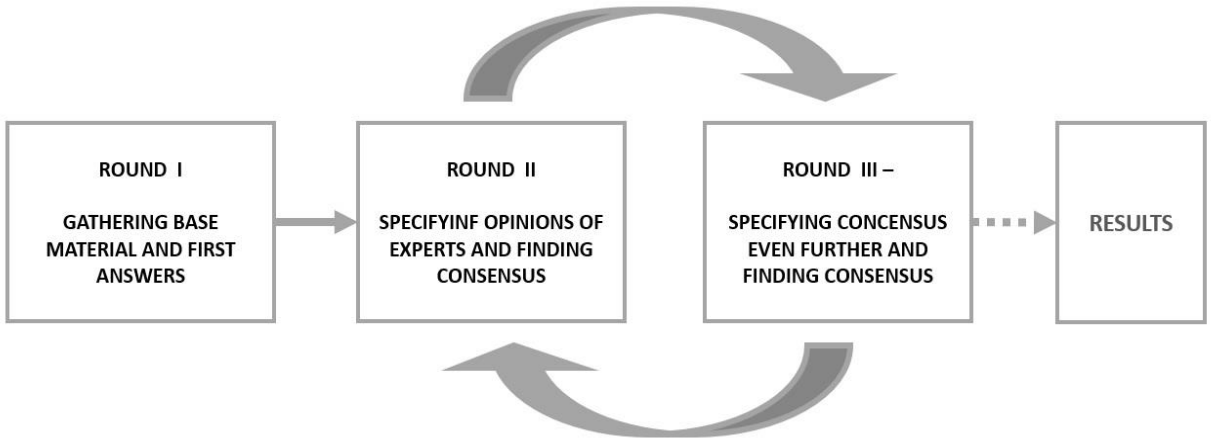
This chapter introduces the research methodology and data used in this thesis. Additionally, the essential results are introduced in this chapter. At first, the Delphi method, the panel of experts and the questionnaires used, the methods for gathering the research data, are described. The used questionnaires can be reviewed in the appendix. The used methods for analysing both quantitative and qualitative data in this thesis are explained as well in the beginning of this chapter. At last, the essential results are presented.

5.1 Delphi method

Delphi method is a qualitative research method, that uses anonymous expert interviews as source material. It is especially suitable and used for future studies, and for subjects that might create or have created varying discussion and debate. By gathering together numerous, various opinions

from different points of views, this method allows experts to have valuable discussion around a chosen topic. The main benefit of this method is that it helps to find and time turning points of different phenomena, that could otherwise be hard to identify by mathematical methods, for example. In addition, Delphi method is proficient in identifying weak signals. (Bergman, Kuusi & Salminen 2013, 248-249) These are also valid reasons, why Delphi method is especially suitable for this thesis.

There is no one single legitimate Delphi method. Instead, the method can be used quite freely, as long as certain characteristics has been taken into consideration. There are three characters that are required from a research method in order it to be identified as Delphi method. The first of them is anonymity of the experts, meaning that the answers of the experts, who participate in the research are anonymous. The experts themselves are known, but according to the anonymity, none of the answers are allowed to be linked to any of the experts. The next two characteristics are iteration and feedback. The research material is collected in several rounds allowing experts to give feedback, discuss and specify their opinions during the rounds. Therefore, the method is iterative. Earlier the method aimed at finding consensus, but nowadays dissenting opinions are as valuable as consensus. (Bergman, Kuusi & Salminen 2013, 249)



Picture 8. Delphi method

Delphi process consists of several steps, and the beginning of the Delphi process is very similar compared to most research processes. At first, research questions and objectives are formed. The second process step is vital, because at this point, the panel of experts is formed. Criteria for choosing right persons to the panel are explained later. After choosing the best people for the panel, a questionnaire for the first questionnaire round is made and tested. Questionnaires can be carried through various ways, for example in written forms, online or even by oral interviews. After all experts have given their answers to the first questionnaire, the next step is to analyse the answers, and then again, to build and test a new questionnaire for the next round. After implementing the questionnaire and analysing the answers, the process continues the same as many rounds as needed. The objective of the first questionnaire round is to gather base material for the next rounds, whereas the second and other rounds aim at specifying opinions and finding consensus. At the end of the process, obtained results are put together into a research report. (Metsämuuronen 2009, 307) Picture 8 above illustrates the course of Delphi method and the questionnaire rounds.

5.1.1 Panel of experts

The participants of this research were chosen according to the criteria, that are commonly used in order to form a competent and qualified expert panel. According to Linturi (2003), there are five criteria that determine whether an expert is suitable for the Delphi panel of experts or not. A person, who is suitable for the panel of experts should have top knowledge and experience in the chosen research subject. In order to get various opinions, it is recommendable to choose experts who represent various backgrounds and various sides of the chosen subject. The person should also have interests in other fields of knowledge, not only his own, and be interested in developing something new. A panellist should be able to examine issues and phenomena from several, untypical points of views, and additionally be able see connections between national and international, current and future development.

In total, there were 16 experts chosen in the panel of experts of this research. The chosen experts represent not only the Finnish pension sector, but also various stakeholders who are influencing on the pension sector or have high interest in pension and workforce transformation related issues. The pension sector was represented by nine top level managers from five different pension companies from both private and public sector. A senior mathematician from the Ministry of Social

Affairs and Health represented the legislator side, and two persons from TELA the trusteeship organization of Finnish pension companies. The research perspective of the Finnish pension environment and workforce was represented by a research director from Finnish Central of Pensions and an economist from the Bank of Finland. Additionally, two pension industry experts from Accenture was included in the panel of experts as representatives of professional service provider of pension industry. All experts are listed in the Table 4 below.

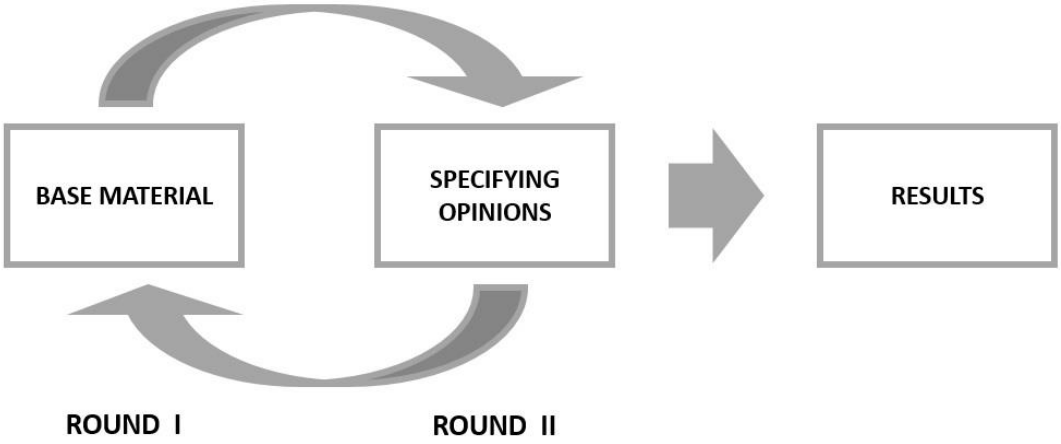
Table 4. The panel of experts

ORGANIZATION	NAME	TITLE	I QUESTIONNAIRE	II QUESTIONNAIRE
Accenture	Olli-Pekka Lumijärvi	Business Strategy Director	✓	✓
Accenture	Jaakko Jutila	Technology Consulting Manager	✓	✓
Bank of Finland	Pertti Pylkkönen	Economist	✓	✓
Elo	Eija Kaipainen-Perttula	Development Director, Customer Relations and Customer Channels	✓	✓
Elo	Eero Sallasmaa	Director, Insurance Services	✓	✓
Elo	Hilkka Malinen	Director, Human Resources	✓	—
Elo	Keijo Kouvonen	Director, Insurance Policies and Pensions	✓	✓
Etera	Tuula Kallio	Director, Work ability and Pensions	✓	✓
Finnish Central of Pensions	Mikko Kautto	Director, Research, Statistics and Planning	✓	✓
Ilmarinen	Pekka Puustinen	Chief Customer Officer	✓	✓
Keva	Pertti Männistö	Pension and Working Life Services Chief Specialist	✓	✓
Keva	Tero Manninen	Customer Relationship Development Manager	✓	—
Ministry of Social Affairs and Health	Mikko Kuusela	Senior Mathematician	✓	✓
TELA	Aija Laurila Elina Laavi	Communications Planner Manager, Public Relations	✓	✓
Varma	Johanna Ahonen	Development Manager	✓	✓

5.1.2 Questionnaires

In this thesis, a two-round version of Delphi method was used for collecting the research data. The rounds were implemented with two web-based questionnaires, of which the second one was based on the answers of the first round's answers. Discussion and exchange of views between the experts were carried through the second questionnaire. The experts were able to comment and specify their opinions and answers in the second round's questionnaire as well as give feedback. The questionnaire of the second round raised especially the points, that has been most divided in

opinions or surprising when examined from theoretical point of view. Therefore, the questions of the second round were purely based on the answers of the first round. Picture 9 illustrates the Delphi method modification used in this thesis.



Picture 9. Modified Delphi method

As told earlier, this thesis combined both qualitative and quantitative data. The two web-based questionnaires included both types of questions, but the first questionnaire was quantitative oriented and the second more qualitative oriented. In the first questionnaire there were 13 questions in total, of which two were qualitative open ended and the rest quantitative questions. In the second questionnaire in turn, there were 15 questions in total, of which ten were qualitative open ended questions and five quantitative questions. The quantitative questions used in the questionnaires were basically quantified qualitative questions. There were several types of quantitative questions, and all of them were either multiple choice questions or included some type of scale. In the both questionnaires there were two background questions about the organization and the name of the answerer, in order to keep track of who had participated the research and answered to the questionnaire. Additionally, the both questionnaires included one fill-in field for participants to write comments or questions regarding the questionnaire or the research.

The two questionnaires were divided into several themes, that included several theme-related questions. The first questionnaire was focused on the change factors, workforce transformation and

change capabilities and needs of pension companies, whereas the second questionnaire took closer look at the identified effects of change factors and workforce transformation as well as business development regarding roles and responsibilities of pension companies. The themes of the first questionnaire were 1. Change indicators of the operational environment of pension companies 2. Workforce of pension companies' customers in the future 3. Pension companies' internal workforce in the future 4. Labour markets and 5. Changes from pension companies' point of view. In the second questionnaire the themes were 1. Change indicators of the operational environment of pension companies 2. Change capabilities and risks 3. Customers and services of pension companies 4. Competition of pension companies and 5. Roles and responsibilities of pension companies.

The questionnaires were published online by using an online survey tool called KyselyNetti. The first questionnaire was carried through 10.-25.10.2016 and the second 31.10.-16.11.2016. Participants got access to the questionnaires by emails, that included brief information about the thesis and links to the questionnaires. All of the experts, excluding Elina Laavi and Aija Laurila from TELA, answered the questionnaires individually. Laavi and Laurila in turn answered together to the both questionnaires, which is why their answers were seen as one single answer in the results. Some of the experts answered to only one of the questionnaires. Tero Manninen from Keva and Hilkka Malinen from Elo answered only to the first questionnaire, but as there were other representatives from the organizations in question, this did not lower the quality of the answers remarkably. Also, because of technical problems, Pekka Puustinen was capable of answering only to the first five question of the second questionnaire online. The rest of his answers were collected in a face-to-face interview on 25th of November. In the interview, no additional questions were asked outside the questionnaire. The answers were documented to a printed questionnaire form during the interview, and then analysed together with answers of the other experts. In order to make answering easier to the experts, the language used in the both questionnaires was Finnish, as all of the experts were Finnish speaking. The questionnaires used can be reviewed in the appendix.

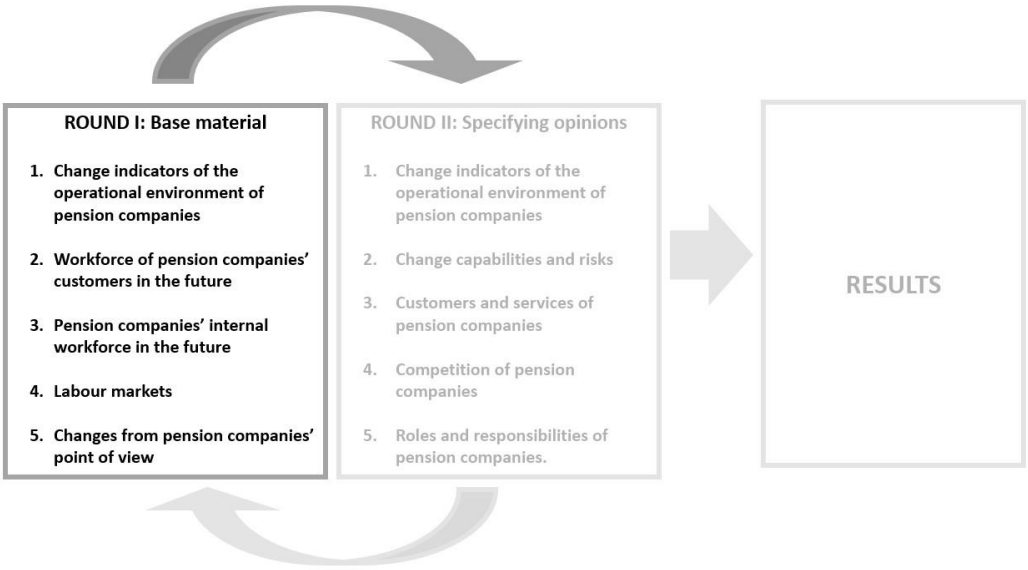
5.1.3 Analysing the results

Because the questionnaires produced both quantitative and qualitative data, both qualitative and quantitative analysis are used for interpretation of the collected data. Quantitative analysis aims among other things at measuring, comparing, exploring and forecasting. Mathematical tools and numbers are key factors when examining quantitative data. In this research, descriptive statistics were used for examining frequency distribution, central tendency and variability of the answers of the quantitative research questions. Key numbers used in the analysis were averages, modes and standard deviations. Average is the arithmetic mean of values, and mode is the most frequent value. Standard deviation describes the dispersion of the values. (Walliman 2011, 113-114; 116-118) All of these key numbers were calculated automatically by the online survey tool, and with the help of them, it was easier to compare opinions, and therefore find similarities and differences between the experts' points of views. The final answers of the experts were defined by the means and modes, but dispersions of the answers were also taken in consideration and presented in the results.

Mathematical tools are hard to apply to qualitative data, which is why that type data requires different analysis methods. Content analysis can be used for analysing various types of data. This analysis method creates a picture of examined phenomenon and then takes bearings to larger contexts. (Sarajärvi & Tuomi 2009, 103-104) The objective of the qualitative content analysis is to turn complex information into simple patterns or configurations, that are easy to understand. When analysing qualitative data, usually the following actions are needed to be taken in order to be able to make conclusions based on the data and to represent them in a reasonable way. Firstly, the big mass of data must be reduced by summarizing and simplifying it. Secondly, in order to be able to display the results in a practical form, it is important to arrange or reorganize the data. (Walliman 2011, 113; 131-132) In this thesis content analysis was applied to analysing the qualitative, open-ended questionnaire answers, meaning that similarities and divergences were analysed by summarising, classifying and grouping the written answers.

5.2 Essential results of the first questionnaire

The essential results of the first questionnaire are explained in this sub-chapter. As mentioned, the objective of the first questionnaire was to gather base material and then use the findings in the second questionnaire round. The results of the first questionnaire are divided into the five sub-chapters according to the themes that were used in the questionnaire itself as well. Picture 10 below illustrates how the first questionnaire round relates to the Delphi process of this thesis.



Picture 10. Delphi process – Round I

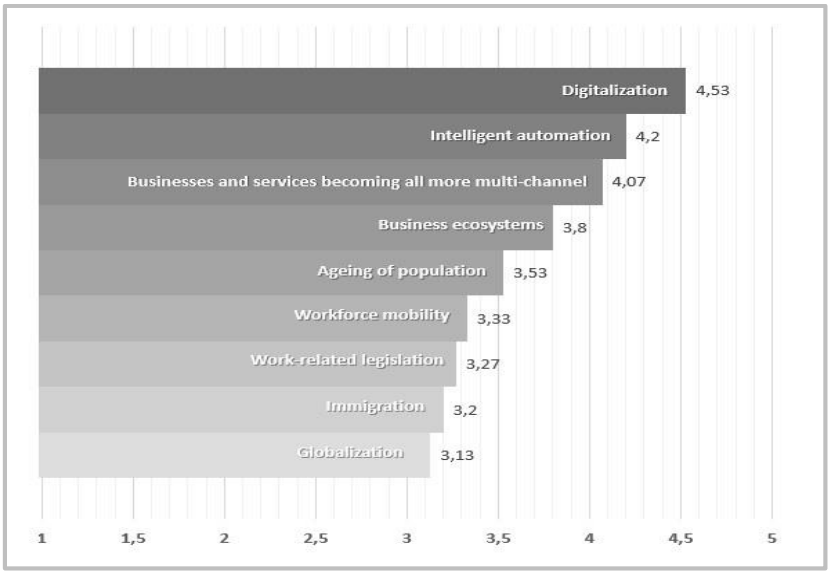
5.2.1 The change indicators of the operational environment

In the first set of questions, the experts were asked to make estimations regarding the change indicators of the operational environment of pension companies, that were described earlier in this thesis. At first, the experts were asked to put the nine change indicators (digitalization, intelligent automation, increasing workforce mobility, globalization, immigration, ageing of population, work-related legislation, business ecosystems and businesses and services becoming all more multi-channel) in a numerical order, according to how remarkable change indicators they see these phenomena to be in relation to each other. The second question in turn challenged the experts to estimate in scale of 1-5, how much the effect of each of the nine change indicators is going to grow

within the next ten years. In the second question the experts were also allowed to address other change indicators, if they wanted. The purpose of the first two questions was to examine, what are the change indicators that affect the operational environment of pension companies and their customers and how remarkable the experts see the change indicator to be.

With the ranking average of 1,93, digitalization was clearly estimated as the most effective change indicator in relation to the other change indicators. In total, 13 experts ranked digitalization as the most or at least the second effective. Excluding digitalization, there was high dispersion in rankings, which can partly be explained by the setting of the question. Ageing of population was ranked as second, if examined by the averages. However, the standard deviation of this change indicator was 2,89 and therefore the highest of all the standard deviations in this question. Ergo, when it comes to ageing of population, the expert opinions were very dissenting. Intelligent automation was ranked as third. Workforce mobility, work-related legislation, business ecosystems and businesses becoming more multi-channelled and multi-dimensional were all ranked rather evenly on the middle level of the ranking. The least important change indicators were seen to be globalization and increasing immigration, of which increasing immigration was ranked as the least or the second least effective change indicator by over half of the experts.

As it can be seen in Picture 11 below, the effects of all the change indicators were seen to grow at least on moderate level as all change indicators got average growth of clearly above 3. The highest scores got digitalization with the average of 4,53, intelligent automation with the average of 4,20 and businesses becoming more multi-channelled and multi-dimensional with the average of 4,07. These scores had also the lowest standard deviations. Unlike in the first question, business ecosystems and immigration were seen to have a growing trend. Together with workforce mobilization and work-related legislation, effects of these two change indicators were seen to grow on moderate level. The least growth was seen in effects of ageing of population and globalization. This does not mean, that ageing of population and ecosystems would not be effective in the future, instead their effectiveness will not grow as much as the effectiveness of the other change indicators.



Picture 11. Growth of the effects of the workforce transformation indicators

In addition to the nine change indicators, there were three additional change indicators identified by individual experts. These were 1. Knowledge and capabilities 2. Health, Social Services and Regional Government Reform, and 3. Operation logic transformation of pension industry towards true value creation. However, the first and the third of the additional change indicators are rather effects of the workforce transformation than causes of it, and were for that reason not examined as change indicators in the second questionnaire. The second additional change indicator in turn was taken in closer consideration and examined further in the second questionnaire. According to Government reform packages (2016) Health, Social Services and Regional Government Reform is the largest administrative and operational transformation ever made in Finland, that aim at transferring the organisation of social services, healthcare and other regional services to counties by the beginning of 2019. The reform has major impacts on taxation, financial resources, steering, social services and hundreds of thousands of jobs, and therefore on pension companies' operational environment.

5.2.2 Workforce of pension companies' customers in the future

In general, the experts had more unanimous answers in this part of the questionnaire than in the previous part, which could be seen in the smaller standard deviations of the given answers. Like the first theme, this theme consisted of two questions. At first, the experts were asked to estimate,

how much different workforce-related factors are going to increase or decrease within the next ten years. The only factor that was seen to decrease was the amount of employees, but the decrease was not seen to be significant. Two other workforce characteristic factors of the question were the people's part of workforce and the amount of high-educated people. These two factors were seen to increase the same moderate amount as the total amount of employees were seen to decrease. The highest increase was seen in the abilities of using digital services. All of the experts could see an increase in these abilities, and two thirds of the experts estimated even that the abilities are going to increase significantly. Employees' abilities to change were also estimated to increase in the future.

As in the first set of questions, the experts estimated workforce mobility to increase in the future. Ten of the experts estimated that employees would be more sensitive to change job because of work satisfaction reasons, but the opinions regarding the increase seen in the sensitivity were not as unanimous as regarding the increase in overall mobility of workforce. The standard deviation of the overall mobility was less than half compared to the employees' sensitiveness to change job for work satisfaction reasons. In addition to increasing mobility, new forms of employment were seen to increase within the next ten years. The experts estimate entrepreneurship to increase, but an even higher increase was seen in working part-time for several employers at the same time. There was also one additional workforce-related factor identified. One of the experts estimated that working during retirement would increase significantly. This factor was raised under examination in the second questionnaire.

The second question regarding the future workforce of pension companies' customers, included seven workforce-related statements. The experts were asked to tell whether they agreed or disagreed with the statements. Three of the statements were about automatization, four about skills and capabilities and one about mobility. 13 of the experts agreed that machines and artificial intelligence are going to be a remarkable part of companies' workforce within the next ten years. Especially strongly the experts agreed with the statement of machines and artificial intelligence replacing people in tasks that include a lot of routines. 14 of all the experts agreed, and four of them told that they agree strongly with the statement. Unlike with the first two statements, on average, the experts did not agree with the statement of machines and artificial intelligence replacing people

in more advanced tasks, that require higher intelligence. Eight of the experts disagreed and six neither agreed nor disagreed. However, none of the experts disagreed strongly. Because the opinions about automatization of more advanced task were rather dissenting, the question was brought up again in the second questionnaire.

All of the experts agreed or strongly agreed with the statement of continuous learning becoming all more important within the next ten years. The importance of learning was also underlined by the statement, according to which workforce must be more capable of learning in the future. The statement was highly agreed by 13 of the experts. Two of the experts neither agreed nor disagreed. The same answers were given to the statement regarding data skills. Data processing and analytical skills were seen to become all more important. In the question about workforce mobility, the experts agreed that workforce mobility is going to increase, but not as unanimously as earlier in questions about increasing workforce mobility. This might be result of mobility being defined as mobility cross companies and cross country boundaries in this statement, which is more precise definition than earlier. However, 11 of the experts agreed or strongly agreed with the statement.

5.2.3 Internal workforce of pension companies

Internal workforce of pension companies was examined with two questions, that included similar elements as the questions regarding workforce generally, but had pension-insurance-specific elements as well. As in the previous part of the questionnaire, in the first question, the experts were asked to estimate how much different workforce-related factors are going to increase or decrease within the next ten years. Unlike in the previous part, in this part the total amount of employees was divided into six pension-insurance-specific factors. In this question, the first three employee factors were need of employees at sales, insurance services and investment operations. The three others were utilization of automation in insurance process, benefit process and investment process.

According to the results, overall utilization of automation was seen to increase in all of the three processes. Especially positive growth of utilization of automation was seen in the insurance and compensation processes, as 14 of all the experts indicated an increase or a remarkable increase. On average, utilization of automation was seen to increase in the investment process as well, but three of the experts estimated it to stay the same. When it comes to the need of employees in different

tasks, the experts had very various opinions about the development. The need of employees in insurance services was seen to decrease, but about sales and investment there was no unanimous opinion. Instead, answers were distributed rather evenly between ‘decrease’, ‘increase’ and ‘no change’ options and therefore average of answers in both cases were very close to ‘no change’.

Cooperation between different organizational departments was seen to grow within the next ten years. 13 of the experts estimated it to either increase or strongly increase. Only two of the experts estimated cooperation to stay on the same level. All the experts saw that employees are all more taken along development activities, as ten of the experts estimated an increase and five a remarkable increase in this factor. Additionally, as workforce mobility was seen to increase in the earlier sets of questions, turnover of employees was, on average, estimated to increase. Albeit, the increase was not seen to be entirely as high as the increase of the general work mobility. Also, nine experts saw utilization of external workforce to increase, but still some of the experts saw it to stay on the same level as nowadays.

As in the previous set of question regarding the workforce of pension companies’ customers, importance of learning was identified also in this part of the first questionnaire. The experts estimated an especially high increase in the needs of analytical skills. Four of the experts saw an increase and ten a remarkable increase in this factor. Additionally, needs of information and data processing skills were estimated to increase almost as much as the needs of analytical skills, as ten of the experts saw an increase and four a remarkable increase in the factor. The experts estimated also, that needs of general IT skills are going to increase, but on average less than the other two types of skills.

The second question was structured in the same way as the second question in the previous part of the questionnaire. There were three statements regarding automatization, three statements regarding learning abilities and one additional statement about pension companies’ current capabilities of answer to changing needs of customers. The answers of the first three statements were fairly similar as the answers of the previous part of the questionnaire, but the overall opinion was more cautious than in the previous part. In other words, the experts did not agree as strongly with the statements of machines and artificial intelligence becoming a remarkable part of pension

companies' workforce. In the previous section 13 of the experts agreed or strongly agreed with the statement, but in this part of the questionnaire only eight experts agreed or strongly agreed with the statement. Additionally, three of the experts disagreed and four neither agreed nor disagreed. More experts also disagreed with machines taking over more advanced tasks. However, almost the same answers were given regarding the next statement in this part of the questionnaire as in the previous. Therefore 13 experts agreed or strongly agreed that machines and artificial intelligence could replace people who handle routine tasks in pension companies within the next ten years. These questions were examined more closely in the second questionnaire.

As in the previous part of the questionnaire, all of the experts agreed or strongly agreed with the statement of continuous learning becoming all more important within the next ten years. Additionally, the experts agreed that workforce of pension companies must be more capable of learning, and data processing and analytical skills were agreed to become all more important in the future. In this part of the questionnaire, 14 of the experts agreed or strongly agreed with the above mentioned statements as in the previous section the number was 13. Importance of learning and relevant skills seem to be underlined in pension companies as well, but it seems that there is no shared opinion about the current capabilities of pension companies to meet the future needs of customers. None of the experts disagreed strongly with the statement of pension companies having insufficient capabilities to satisfy changing needs of the customers in the future, but otherwise the answers were distributed rather evenly between 'disagree', 'neither agree or disagree', 'agree' and 'strongly agree'. This statement was therefore examined more closely in the second questionnaire.

5.2.4 Labour markets

Changes on labour markets were examined by one question, that included six statements regarding general development in the labour markets. The experts were asked to tell whether they agreed or disagreed with the statements. The results were along the same lines with the results of the previous parts of the questionnaire. However, the average opinions were not as strongly agreeing or disagreeing as there were on average more 'neither agree nor disagree' answers given than in previous parts. In total the experts agreed that workforce mobility is going to increase remarkably. Also freelance and entrepreneurship were seen to increase as forms of employment. Eight of the experts agreed, three strongly agreed and four neither agreed nor disagreed with the statement. The

most unanimous the experts were about the statements of companies increasing utilization of external workforce and more and more people having several part-time employments at the same time. The educational statement about occupational education provided by employers replacing higher education raised dissenting opinions. All of the answering options got support. Two of the experts strongly disagreed, six disagreed, three neither agreed nor disagreed, three agreed and only on strongly agreed. On average the opinion was disagreeing.

5.2.5 Workforce transformation from pension companies' point of view

The last part was the largest part of the first questionnaire, and included six questions regarding the workforce transformation from pension companies' point of view. The first question included multiple statements about the effects of workforce transformation related to Finnish pension companies. The identified effects applied to customers, services, competition and business development of pension companies, but there was also a fill-in field for the experts to bring up additional effects. All of the experts agreed, that because of the increasing uncertainty, agile methods should be used in business development. However, the experts were not completely unanimous about uncertainty affecting decision making, as the answers were mostly agreeing, but there were a couple of disagreeing and several neutral opinions given as well.

Intelligent automation and new forms of employment were estimated to have effects on the customer base of pension companies. Two thirds of the experts estimated that the number of pension insured persons is going to decrease because of intelligent automation. The rest of them neither agreed nor disagreed. The same type of distribution of opinions could be identified regarding the statement of the number of employees decreasing in pension companies because of intelligent automation. Therefore, on average intelligent automation was estimated to have a decreasing effect on overall pension contributions. Additionally, all of the experts agreed or strongly agreed that the amount of small corporate customers is going to increase within the next ten years. Also new customer segments were estimated to be created as a result of increasing amount of entrepreneurs and freelancers.

The indicators of workforce transformation were estimated to have major effect on pension companies' services and customers' expectations regarding the services. The experts were the most

unanimous about the effect of increasing demand of digital and real-time services. Six of the experts agreed and nine strongly agreed with the statement. Also the experts estimated that the service level expectations of the current additional services are going to increase at the same time. Unlike regarding the level of services, the experts were not as unanimous regarding the amount of additional services. The statements of personal and corporate customers expecting a large amount of additional services raised dissenting opinions. Most of the experts agreed or strongly agreed with both of the statements, but there were also disagreeing and strongly disagreeing opinions. For that reason, effects of workforce transformation on service offerings of pension companies were examined in the second questionnaire as well.

Opinions about the effects of workforce transformation on the competitive environment of pension companies were rather divided. There were four statements regarding competition, but none of them had clear, unanimous answers. Some of the experts estimated, that pension companies are going to have more competitive weapons in the future, and that pension companies are most likely going to be able to expand their businesses to new service offerings and business areas, but within the fames of current concessions. One of the experts even underlined increasing competition, by typing it as an additional effect to the fill-in field. However, many of the experts had a completely opposite opinion about the statements. The opinions about pension companies' role in labour market development were also highly dissenting. Additionally, the experts could not say whether they thought that concessions are going to be changed or not. In order to gain understanding of the different opinions, the effects on competitive environment were brought up and examined in the second questionnaire.

In the second question, there were numerous organizational and business factors listed, and the experts were asked to estimate, how big risks they thought the factors are for the pension companies and their mission of fulfilling their customers' needs in the future. In the analysis process, the factors were divided into four groups. In the first group there were factors that described attitudes of pension companies towards the needed development actions. The second group included hinders for making business development, and the third organizational and personnel factors. The fourth group in turn included technical factors. As a whole, the question turned out to be an opinion separator as the estimations were highly dissenting. In general, dispersion of the answers was

higher than in any other question of the first questionnaire. Therefore, it seems that it was hard for the experts to estimate the possible risks. In scale of 1-5, all of the factors had an average risks score of 2,6-3,53, but because of the high dispersion it was hard to make any definite conclusions.

Nevertheless, based on the averages, the biggest risks seemed to be technical, as the highest risk scores gained IT architectural constraints, that do not support the future needs. Besides this, low level of automation utilization got almost as high risk scores as the rigid IT architecture. Also, legislation as a barrier to change, rigid organizational structures and disability to develop needed services were ranked among the biggest risks. The lowest scores, in turn, got lack of internal innovation and inadequate training of employees. On average, pension company representatives considered the factors as bigger risks than the other experts. However, as a conclusion, the only rather certain result of this question was that it was very hard to estimate the future risks and the sizes of them. Therefore, the organizational and business factors, the obtained results and risks of pension companies were also examined in the second questionnaire.

The third and the fourth questions related to business development tools and actions. At first in the third question, the experts were asked to indicate whether they agree or disagree with the proposed business development actions. Then in the fourth question, the experts got to choose five of them, which they thought were the most important ones and that they thought pension companies should implement in order to satisfy the future needs of their customers. In general, the experts had very similar, agreeing opinions about the needed business development actions, excluding the actions regarding decision making and key customer groups. On average, the experts agreed with the statements of pension companies needing to make decision making of top and middle management more effective, and to give more decision making power to lower organizational levels. However, there were many ‘neither agree nor disagree’ answers given, which tells about many of the experts not having a clear opinion about the matter. Additionally, the experts had very dissenting opinions about whether pension companies should focus on small, medium sized or large corporate customers. This dispersion of the answers might have been caused by a rather problematic setting of the question, and that is why the question about the key customer groups was re-examined in the second questionnaire.

The most important, the most unanimous and the strongest agreeing answers were related to increasing cooperation, improved development and skills. All of the experts either agreed or strongly agreed that business development should be made continuous as objectives are in continuous change as well. This action got also the most votes, when considering the five most important actions for pension companies to take. Additionally, the experts agreed that customers are needed to be taken along business development, as that was also included to the five most important factors as the second popular action. All of the experts also strongly agreed that services should be developed to match customers need in a better way. As a tool for better business development, the experts agreed that proper, encouraging systems should be created in order to improve internal innovation in pension companies. In addition to all these actions, digital skills of pension companies' employees should be improved, which was also included in the top five business development actions.

The other tools and actions were partly seen to be important, but the opinions were not as highly agreeing as regarding the actions mentioned above. In point of fact, two thirds of the experts chose 'neither agree nor disagree' when giving their opinion regarding statements of outsourcing functions, utilizing more external workforce, increasing overall automation level and renewing IT core systems. The opinions of the one third of the experts regarding the above listed business development actions and proposals, were in turn mostly agreeing. With the statements of increasing partnerships and improving efficiency of core processes the experts did agree, but not as strongly as with the statements of the top five business development actions.

Unlike the pervious questions, the last two questions of the questionnaire were open-ended questions. The objective of the questions was to let the experts freely vision the future of pension companies and to get varying statements about the possible future development, that could be used as base material in the second questionnaire. It was important, that answers of the experts were not restricted and that the experts could use their own words in describing and explaining their thoughts. The questions examined pension companies in the context of the Finnish society and labour market. At first, the experts were asked to describe, what kind of role they see pension companies to have in the society, and then what kind of role they see pension companies to have

in labour market development in the future. The answers were varying in length, but the opinions were clear and all well explained.

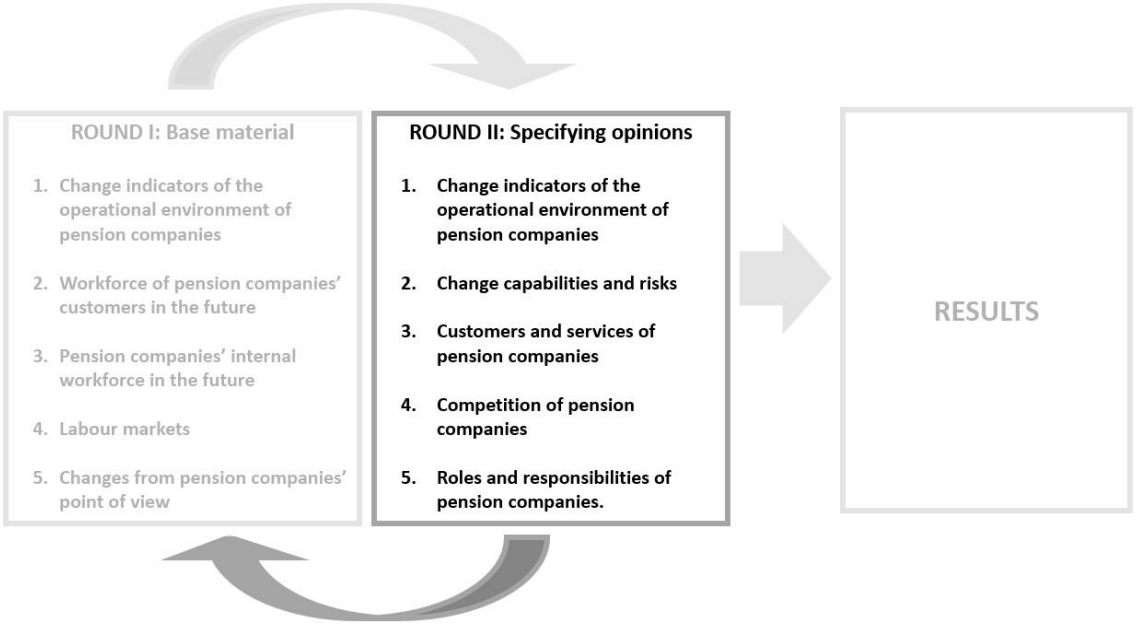
The opinions about the pension companies' roles in the society were very unanimous and similar. All of the experts saw that in general, the role is going to remain remarkable and become even more important. Demographic development and changing age structure were identified as the main reasons for pension companies' role becoming all more important. There were three societal roles of pension companies identified, that were all brought up by several experts. Firstly, profitable fund management was considered as one of the main roles of pension companies. The role was, amongst others, explained by pension companies being the biggest investors in Finland. With targeted investments pension companies can affect the essential societal matters. Like the societal role in total, this role was also seen to be stressed by the demographical development. Secondly, pension companies were seen to be conversationalists, who participate in the societal discussion and offer their expertise to decision makers to use. Because changes in working life become visible in pension companies, several experts proposed that pension companies could have even more important role as counsellors and help in decision making with their information. Thirdly, pension companies were seen as promoters and developers of productivity, health and working ability. Amongst others, pension companies were seen to have huge potential that could be used for helping pension companies' customers. In that way pension companies could increase overall productivity and health of Finnish workforce. This role was even titled as the core mission of pension companies.

The experts were not as unanimous about the pension companies' role in labour market development as they were regarding the previous question. In fact, the experts seemed to be divided into two groups by their opinions. The others thought that pension companies are not going to have any significant role as developers of labour markets, and that the role is going to remain mainly as supporter or follower. The experts who favoured this opinion, explained that pension companies' role cannot and should not be bigger, because it is not included in their core business. Also, if they took too big role, pension companies could be used as political "hobbyhorses". The other group thought instead, that pension companies are going to play a lot more important role in labour market development in the future, because pension companies are going to be all more capable of seeing

the top priorities of labour market development. For that reason, pension companies could and should have more significant role in increasing participation rate on labour market and improving working ability, wellbeing at work and rehabilitation. From the Finnish pension scheme's perspective, it was seen to be important that pension companies could offer their knowledge and services to be used in labour market development. The experts reckoned, that by proper segmentation and services pension companies could improve labour market and its development significantly.

5.3 Essential results of the second questionnaire

The essential results of the second questionnaire are explained in this sub-chapter. As mentioned, the objective of the second questionnaire was to specify the answers of the first questionnaire, as told in the previous sub-chapter. Additionally, some of the themes and questions were taken even deeper, in order to form more holistic picture of the research subject. As of the first questionnaire, the results of the second questionnaire are divided into the five sub-chapters according to the themes that were used in the questionnaire itself as well. Picture 12 below illustrates how the second questionnaire relates to the Delphi process of this thesis.



Picture 12. Delphi process – Round II

5.3.1 Change indicators of the operational environment of pension companies

The first part of the second questionnaire focused on forming a more specified view of intelligent automation and its utilization possibilities in Finnish pension companies and their customers. In the first questionnaire, opinions about intelligent automation replacing people in more advanced and high intelligence requiring tasks were negatively oriented. Also, in quantitative measures in general, the experts saw that there would be differences between pension companies and their customers, when it comes to automation utilization capabilities. These interesting results of the first more quantitative questionnaire were re-examined by two qualitative questions. At first, the experts were asked to tell whether they believed or not, that machines and artificial intelligence are going to replace people in more advanced tasks in their customer companies. Then they were asked the same question from pension companies' perspective. In both questions, the experts were also asked to explain, why they did or did not believe in that kind of development.

Answers of the both questions were divided into two groups. Most of the experts saw machines and artificial intelligence becoming a remarkable part of the workforce, but there were also many experts thinking the opposite. In the first question, eight of the answers favoured intelligent automation replacing people in more advanced tasks in the future. The opinions were explained by rapid technological development, that is driven by increasing demand for higher productivity and prices. The development was compared to industrial revolution, that replaced people with machines in physical work. According to one of the experts, digital revolution is going do the same to a great extent in cognitive work. Therefore, as explained in the answers, analytical tasks, such as claims handling, book keeping, diagnostics and research are going to be reduced. In most industries, analytical applications are already widely used in cognitive tasks. In a rich country like Finland, that aims at high level of competences, there are good prerequisites for advancements in robotics and artificial intelligence. As an example, one of the experts mentioned Tieto, a Finnish software service provider, that has already appointed artificial intelligence to its leadership team. Additionally, the experts thought that from technology's perspective ten years is so long time, that it is impossible to even imagine, what is ahead in the future.

Five of the experts thought the opposite. In their opinion, in ten years' time intelligent automation is not going to take as sufficient leaps as it would be needed for machines taking over more

advanced tasks. Machines and artificial intelligence were seen to be able to take over only tasks, but not much more. As an opposing argument to intelligent automation, the experts explained that people are needed for sentiment-based decision making, that machines are unable to carry out. Machines and artificial intelligence were seen to be able to produce data, but in order to analyse it, there must be multitalented people. According to one of the experts, artificial intelligence is never going to replace people's emotional intelligence, interaction and analytical skills, and cognitive capabilities collected from different sources. Nevertheless, one of the experts explained, that even though artificial intelligence would partly take over some of the more advanced and intelligent tasks, there would be new tasks created. In other words, artificial intelligence was not seen to replace, but transform advanced tasks.

Unlike in the first questionnaire, most of the experts thought that machines and artificial intelligence is going to take over many more advanced and intelligent tasks in Finnish pension companies. In fact, a larger part of the experts was agreeing in this question than in the previous one. The arguments both for and against were rather similar than in the previous question. The experts who did not see intelligent automation replacing people in more advanced tasks, explained that the time frame is too short for pension companies taking any big technological leaps, and that machines and artificial intelligence could only be used in routine and linear tasks. The experts who favoured intelligent automation explained, that pension companies' IT systems and processes are already so developed that automation can be utilized in many parts, and that utilization of automation is going to advance with accelerating pace. The most challenging tasks of pension companies' decision processes are actually making conclusions based on different rules and pension legislation, and could therefore be automated. According to experts, automation could even bring objectivity to decisions. The only problem that was seen to hinder pension companies of adopting more advanced technologies, was the fact that the Finnish pension cover is very complicated, and the upcoming pension reform is not going to improve the circumstances.

5.3.2 Change capabilities and risk assessment

In the second part of the questionnaire consisted of three questions. At first, there was a short summary of the results of the first questionnaire, where the highest growing workforce transformation indicators and the most significant effects on pension companies' operational

environment were listed. The experts were asked to tell, whether the contents of the summary correspond to their thoughts of the changes of the operational environment of pension companies within the next ten years. All of the experts unanimously agreed with the summary, but two of them also reminded that they find the ten years' time frame rather short, and that workforce transformation is not going to happen as fast as assumed. There were also additional thoughts presented by the experts. The changes caused by workforce transformation, were seen to be especially large in some of pension companies' customer segments. Needs of small and medium sized companies were seen to be emphasizing and digital services to become more important in the future.

Then, bearing the workforce transformation indicators in minds, the experts were asked to estimate, how sufficient pension companies' capabilities are in terms of being able to answer their customers' needs in the future. The answers were dissenting. Most of the experts thought that the current capabilities are decent, but there are still many improvements needed to make. Sufficiency was seen to depend on what kind of services and ecosystems pension companies are able to develop, and how regulation and legislation are going to change in the future. According to the experts, pension companies have been able to improve employer and entrepreneur services rather well, but services of personal customers have not kept up with customer needs. One of the experts saw that capabilities could be better, if pension companies cooperated more with each other, instead of reinventing the wheel in service development for example. However, one of the experts thought that the current capabilities are still very well sufficient. Two of the experts in turn saw that pension companies lack of capabilities and that the future technologies pose pension companies a great threat.

The third question of this part of the questionnaire was dedicated to risks. In the first questionnaire, it turned out that there was no unanimous opinion about the sizes of the potential risks. Therefore, the organizational and business factors as potential risks were re-examined in this questionnaire. The same list of potential risks was used in this question as well, but this time the experts were asked to choose five risks that they see to be the most threatening for pension companies and their mission in the future. This time, it was easier to identify the top risks, however the question did not reveal the sizes of the risks. Nevertheless, according to the experts, IT architectural constraints,

rigid organizational structures and the difficulty of forecasting the future customer needs are remarkable risks for pension companies' development work. Additionally, the experts saw that that the needed changes in pension companies are so enormous, that they are difficult to implement fast enough. Lastly, the experts estimated that legislation creates also hinders to development, and is therefore included in one of the top risks.

5.3.3 Customers and services of pension companies

There were four questions regarding customers and services of pension companies. The first two of them examined what kind of changes workforce transformation is going to cause in pension companies service offerings and customer service, and what kind of business development actions would help pension companies the most to serve their customers better in the future. At first, the experts were asked to estimate the major changes in service offerings and customer service in pension insurance. There were three major changes, that could be identified from the answers. Firstly, digital solutions are going to increase significantly, and self-service channels are becoming all more important. Secondly, pension companies' customer base is going to face a structural change, which affects pension companies' service development. Small and medium sized companies and people in active working age are going to drive pension companies' service development because digitalization ensures adequate resources for developing services for these customer groups. Additionally, these groups are very important from the Finnish pension scheme's sustainability perspective.

Thirdly, the insurance interface in pension insurance is going to fade. Pension companies are going to become parts of the larger social security and statutory insurance entity, and obligatory operations are going to become invisible parts of customer service palettes. Because pension companies' core business processes are going to be highly automated and customer information are soon available without customers needing to provide any information, additional services become all more important. One of the experts underlined, that if pension companies are willing to interact with their customers in the future, they have to improve their additional services. In addition, importance of networking and cooperation is going to increase. The experts explained the change by intelligent automation, digitalization and the National Income Register. The National Income Register is a service developed by the Finnish Ministry of Finance, that provides

information about wages, salaries and income details of individual citizens to authorized parties in real-time and automatically. The service is intended to be deployed to production in 2019. (Ministry of Finance 2016) This means, that for example pension companies are going to have straight access to their customers' information, which changes the service models but can benefit both customers and pension companies.

In the second question there was a list of business development actions and the experts got to choose five the most important in order to improve customer services and offerings. The answers were in line with the results of the first questionnaires, as improving customer focused service development and ensuring advanced service channels were raised as top priorities. According to the experts, customers should be taken along in service development, which would help pension companies to develop services that correspond to customers' needs. Additionally, pension companies should be able to provide a seamless multi-channel service experience to all their customers. In order to success in this, both advisory channels and pension claim service channels should be made digital. In addition to this, the experts estimated that building new service channels is one of the top actions.

The purpose of the third question was to specify the results that were obtained in the first round, because in the first questionnaire opinions about the most important target group were highly dissenting. This time, the experts were asked to put six different customer groups to a numerical order by estimating how big effect they think a group to have on pension companies' business strategies within the next ten years. The groups included were large companies, medium sized companies, small companies, entrepreneurs, employees of customer companies and retirees. The question raised still dissenting opinions, but the dispersion of the answers can partly be explained by the question type. Nevertheless, small companies and entrepreneurs as customer segments were ranked as the biggest influencers and were therefore considered to have the biggest effect on pension companies' business strategies. Medium sized companies were also considered almost as important as small companies and entrepreneurs but there was higher dispersion in the answers. Employees of customer companies and large companies had the highest dispersion of answers, which is why their effectiveness was seen to be very average. The experts had consensus in their

opinions about retirees, as that segment was considered to have smallest effect of all the customer segments mentioned.

The last question of this part of the second questionnaire brought up the additional effect, which was identified in the first round. The experts were asked to estimate, what kind of changes Health, Social Services and Regional Government Reform is going to cause in pension companies customer base and how these changes should be taken into consideration in business development. In general, the experts thought that they are not able to estimate the effects at the moment. At the moment, neither the experts nor pension companies have any precise information available about the reform that they could share or rely on. Therefore, with the information that the experts had, they were able to make only rough estimates of what is going to happen. The most essential question from pension companies point of view seemed to be, what is going to happen if an enormous amount of employees changed their public employer to a private one. If pension insurances of these employees were also changed from public provider to private provider, it would mean that the public pension market would most likely shrink. It would also raise competition for the new customers in private sector. However, as one of the experts stated, because there is only a limited amount of information available at the moment, the most essential thing to do, is to be enclosed of the reform preparation at all times. Therefore, pension companies should keep themselves informed until final decisions have been made.

5.3.4 Competition of pension companies

This part of the questionnaire is related to the results of the open-ended questions of the first questionnaire, where the experts brought up competitive factors and competitive environment of pension companies. This time, competitive environment was examined from pension companies' cooperation and business offerings' perspectives with three questions. At first, the experts were asked, whether they believed or not, that pension companies are going to differentiate by their offerings, so that there would be pension companies operating with different service profiles. The answers were divided evenly. The experts, who did not see differentiation to be expectable, explained that the financing structure and joint responsibility of pension companies restrain differentiation. The whole operating logic in statutory pension insurance does not encourage or inspire pension companies to reach for any transformational inflections in their operations. In

addition, pension companies cannot scope out certain tasks and operations, which is why their possibilities to differentiate are limited. On the other hand, the experts saw that differentiation is possible, if legislation allows it. Especially differentiation through customer segmentation, customer bases and marketing actions were seen to be expectable.

In the second question, the experts were asked about their opinions regarding pension companies core businesses and additional competitive elements becoming differentiated. The answers were unanimous as all of the experts considered it to be highly unlikely. The only tentative statement in favour of differentiation was that by centralising core business operations into one company and keeping the decentralised investment management structure, great benefits and savings could be achieved. However, at the moment pension regulations and legislation do not allow this kind of change. Legislation sets strict frames to the overall competition in the Finnish pension insurance sector, which is why there are only limited amount of possibilities for pension companies to compete with each other at the moment.

The last question in this part examined cooperation between Finnish pension companies in the future. The experts were asked whether they thought that pension companies should increase their cooperation in order to fulfil their societal responsibilities in a better way or not, and in which areas increasing cooperation could be possible and the most beneficial. The answers were once again divided rather evenly, but increasing cooperation got slightly less support than the opposite view. Those who favoured increasing cooperation, explained that cooperation could create benefits by reducing overlapping work. According to the experts, cooperation would especially be beneficial in digital and pension claim service development and in standardising core processes and systems of pension companies. Pension companies could also cooperate better in pension insurance transfer cases, and in this way ensure better information procedures on personal customers' level. In addition, as pension companies have a shared mission, they could have more cooperation in sharing information about pension insurances to their customers and Finnish citizens.

5.3.5 Roles and responsibilities of pension companies

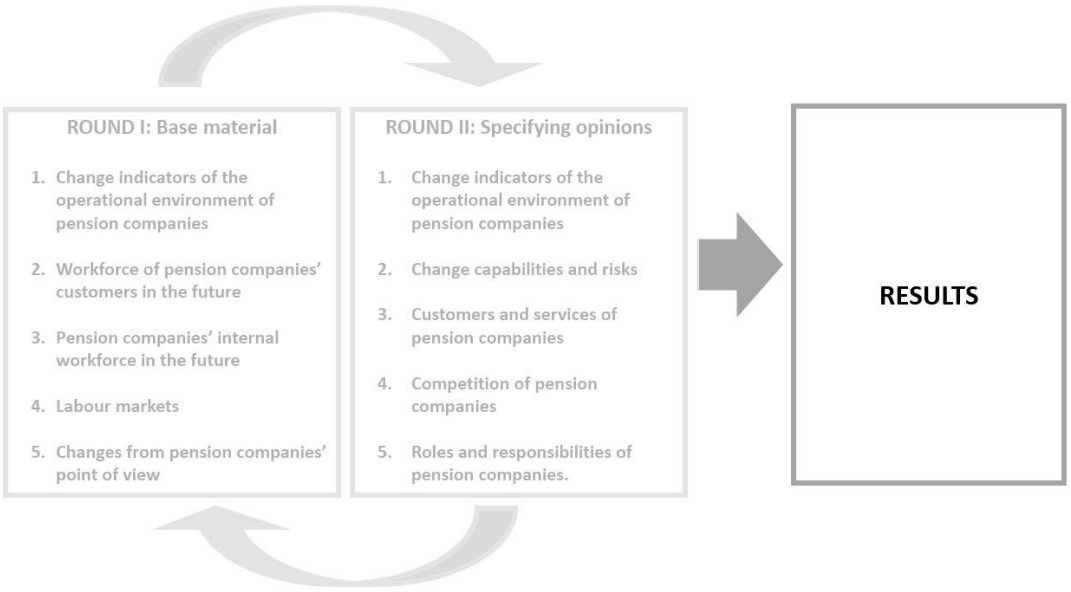
The last part of the second questionnaire examined pension companies' roles and responsibilities in the future, especially from the labour market development's perspective. There was one open-ended and two multiple choice questions. At first pension companies' core mission and roles on labour markets were examined. The experts were asked to give opinion about whether they thought that pension companies should be ideological leaders and working life transformers or not, and what kind of tools pension companies should use in order to fulfilling these missions. Most of the experts thought that pension companies should definitely adopt the roles, because working life development is tightly linked to lengthening career and maintaining ability to work. Pension companies have endless amount of valuable information and competences which should be utilized. However, according to the experts, pension companies cannot solve these issues themselves, but what they could do, is to participate in societal discussion and offer their capabilities more actively. The experts who were against the roles, explained that working life development and transformers comes from elsewhere and that pension companies should focus on their core mission of carrying out the statutory pension cover.

In the second question there were several possible roles listed, and the experts got to choose as many of them as they thought to apply to pension companies as actors on labour market. All of the listed roles got support from the experts but some of them not as much as the others. Unlike in the first questionnaire, none of the experts thought that pension companies should only have a role as follower. Instead, roles related to occupational rehabilitation, ability to work and wellbeing at work got high support from the experts. This result is well in line with the results of the previous question. Additionally, more than half of the experts thought that pension companies should have role as information sources, supportive experts in societal decision making and improvers of the participation rate in the Finnish labour market.

The last question examined possible offerings of pension companies in the future. There were several different types of offerings listed, and the experts were asked to choose as many of them as that they thought would be profitable and relevant offerings of pension companies in the future. The proposed offerings related to labour market facilitation, health and wellbeing, education and working spaces. The answers were aligned with the answers of the previous question as services

related to employees' health, ability to work and wellbeing at work got the most support from the experts. In addition to these, the experts saw services, that aim at improving not only individual health but also work community, to be relevant. Most of the experts saw that pension companies could also offer their office spaces to their customers as co-working venues. The rest of the proposed additional services did not get as high support as the ones mentioned above. For example, only a few experts saw that pension companies should offer rehabilitation and education for retirees, disabled or rehabilitating persons in order to help them to find new employment.

5.4 Discussion



Picture 13. Delphi process – Results

This sub-chapter explains the essential results of the two questionnaires as illustrated in the Picture 13 above. All of the workforce indicators were identified to have effects on the operational environment of Finnish pension companies and their customers within the next ten years. Technological and business factors seemed to have bigger impact than demographical changes and globalization. Digitalization, intelligent automation and businesses and services becoming all more multi-channel, turned out to have the biggest effect on Finnish workforce and pension companies in the future. Ageing of the Finnish population was also seen to have a great impact on workforce.

However, demographical development is more predictable than technological development, as demographical changes do not happen as fast as in technological, which might be a reason why demographical factors tuned out not to have as big impact on pension companies' operational environment. Pension companies and other actors of the Finnish pension scheme have had time to make preparations for the upcoming demographical changes, for example, in form of the upcoming pension reform. Nevertheless, the experts were not unanimous about the speed of technological development and workforce transformation. Some of the experts thought, that ten years is a rather short time for any dramatic changes to happen. The rest of the experts considered ten years to be very long time, and that technology is going to change Finnish workforce considerably during that time.

The results regarding future workforce were aligned with the previous reports presented in theoretical part of this thesis. According to the experts, increasing mobility is going to characterize Finnish workforce and employment structure in the future. Employees are not going to be tied inside country or company boundaries. Hand in hand with national and international mobility, comes structural change of employment. New forms of employment are becoming more and more popular, even though the traditional full-time permanent employment is going to keep its dominance as the most usual type of employment. However, more and more people are going to work part-time for several employers at the same time. This applies even to employees with permanent, full-time employment. Besides part-time jobs, people are becoming all more self-employed, as the number of entrepreneurs is increasing. In fact, the experts saw that entrepreneurs and small companies are going to have the biggest effect on Finnish pension companies' business and strategy development.

Utilization of intelligent automation as a part of workforce is going to increase in both pension companies and their customer companies. The experts agreed unanimously, that machines and artificial intelligence are going to replace people in tasks that include lots of routines. Utilization of automation in more advanced tasks that require higher intelligence, raised divided opinions among the experts. The experts who did not see intelligent automation replacing people in more advanced tasks, explained that ten years is a short time period, and that technology is not going to face that big advancements during that time. Additionally, sentiment-based decision making and

analytical capabilities of intelligent machines were called into question. However, most of the experts did see this kind of change happening in ten years' time. Robotic applications are developing fast, and the experts saw Finland to have good prerequisites for rapid technological development. Especially analytical tasks and jobs were seen to be replaceable. For example, several of the experts pointed out that the most advanced tasks in pension companies are after all analytics and making conclusions based on different regulations and pension legislation.

The results of the questionnaires confirmed the increasing importance of continuous learning in the future. The experts agreed that workforce must become more and more capable of learning fast and continuously. Because digitalization brings new tools all the time, new skills are required. In these terms, workforce and organizations should become all more flexible. Fortunately, workforce was seen to have better capabilities of change and development, and also better digital skills in the future. The experts estimated data processing, analytical and digital skills to become particularly important. In addition to these, workforce and organizations were estimated to increase cooperation with both internal and external stakeholders. From pension companies' point of view, the experts estimated this to mean especially increasing cooperation with customers in service development.

Pension companies' role in the Finnish society was seen to stay remarkable, and to even grow. The experts pointed out, that demographical development and ageing of population are going to emphasize the societal role of pension companies. However, none of the experts mentioned digitalization or intelligent automation having an effect on pension companies' role in the Finnish society. This is interesting, because as presented in theoretical part of this research and validated by the experts in the questionnaires, intelligent automation and digitalization are going to increase the change and learning requirements of future workforce, and at the same time to take over increasing number of jobs. Therefore, it is worth noticing that technology was not seen to have effects on pension companies' role in the society. Not even though technological indicators turned out to be the most effective workforce transformation change indicators.

Unlike pension companies' role in the Finnish society, pension companies' other roles and responsibilities were not clear. Most of the experts saw that pension companies should have a role as ideological leaders and as working life transformers in the society. The experts who favoured

the roles mentioned above, explained that pension companies have great potential to improve working life. Large amount of information and industry knowledge are capacities that should be used for improving working ability and wellbeing at work, and therefore careers and participation rate on labour market. On the other hand, a part of the experts thought that pension companies should focus on their core mission – carrying out statutory earnings-related pensions in Finland. Working life transformers were explained to come from elsewhere, which is why a part of the experts did not see pension companies to have any significant roles as working life developers. However, investment management was seen to be a tool by which pension companies could have an ideological and trendsetting impact on the Finnish working life, without being a transformer.

In general, the core mission and the societal role of pension companies were emphasized in the answers. However, in general these seemed not to be in conflict with the other potential roles of pension companies. As mentioned, most of the experts thought, that pension companies should have more significant role in working life development. Pension companies' obligatory operations were even estimated to become imbedded, invisible parts of customer service palettes as working life services become more and more important. In order for pension companies to be able to allocate more resources to working ability, wellness at work and other working life services, efficiency of the core operations should be improved. However, the experts pointed out, legislation can be a hinder in pension companies' business development. As explained in the theoretical part of the research, pension companies are obliged by law to operate effectively. That sets strict frames to pension companies' operations. This can be one explanation, why some of the experts opposed pension companies expanding their role in the Finnish society.

The experts estimated that Finnish pension companies have reasonable capabilities of managing the needs of transforming workforce and customers. However, the current capabilities were not seen to be adequate, and therefore some improvements were seen to be needed. Especially the growing customer groups, entrepreneurs and small and medium sized companies, were seen to be driving service development of pension companies during the next ten years. Also the growing demand for digital services and the high expectations of service levels force pension companies to make their business development continuous. According to the experts, pension companies should involve customers in service development in order to create services that meet the customer needs

also in the future. Therefore, pension companies' focus should be all more in their customers. Additionally, pension companies should increase internal innovation and cross-functional teams in their service development.

There seemed to be high willingness and intentions to take business development actions in order for pension companies to manage the workforce transformation, but besides legislation constraints business development of pension companies was not seen to be completely problem free. Especially rigid IT architecture and systems were seen to be great risks for pension companies. Also siloes and inflexible organizational structures were estimated to oppose challenges to pension companies' business development. The experts also called pension companies' capabilities to make improvements and innovate in question. According to most of the experts, needed changes are hard to estimate and so enormous, that they are hard to implement. In other words, even though pension companies might have capabilities to develop themselves, needed improvements are so large and time consuming that pension companies are not capable of carrying them through in sufficient pace.

6 CONCLUSION

The theoretical part of this thesis was divided into three key areas. At first in the second chapter, a holistic picture of the Finnish pension system and its actors was formed. The third chapter therefore explained characteristics of pension business and the competitive environment of pension companies. The chapter took a closer look to organizational structures, functions and customers of pension companies, forming deeper understanding of how pension companies operate and what are their offerings and target groups. The first two chapters formed the conceptual theory of the thesis. The fourth chapter in turn formed the interpretation part of the theory. It included information about the global phenomena that affect the Finnish workforce and cause the workforce transformation. In this chapter the workforce transformation factors, such as technological development including intelligent automation and digitalization, globalization and business ecosystems, as well as demographical factors were introduced and their effects on pension environment were explained.

The target of the empirical part of the thesis was to gain understanding of what kind of indicators cause workforce transformation, and which ones of them have the most drastic impact on pension companies' operational environment. In addition to this, pension companies' roles in the Finnish society and labour market were examined in the empirical part of the thesis. Lastly, the empirical part of the thesis aimed at forming a holistic picture of how workforce transformation is going to affect the operational environment of Finnish pension companies and their customers, and how pension companies could prepare themselves for the on-going and continuous change. In this chapter, the obtained empirical results and the essential conclusions are gathered together. The three research questions are being answered separately Additionally, in the latter part of this chapter the thesis is evaluated by its reliability and validity, and in the very end, there are also suggestions for further research presented.

6.1. Answering research questions

There were three research questions in this thesis. The effects of workforce transformation and workforce transformation indicators were examined by the first question. The objective of the first question was to form a picture of how workforce and the Finnish labour market are going to change in the future, and how the changes are going to affect pension companies, their customers and the business environment. Technological development including digitalization and intelligent automation are estimated to have the biggest impact on pension companies' business environment. Demographical development, especially ageing of population, is also going to shape the workforce, but its impacts are not going to grow as drastically as the impacts of the technological development. From both pension companies' and their customers' points of view, intelligent automation was seen to be capable of taking over more and more tasks that are currently handled by people. However, not all of the experts saw technology to advance so much during the next ten years, as utilization of intelligent automation in replacing people in more advanced tasks that require higher intelligence raised opposing opinions. Besides increasing utilization of intelligent automation, workforce transformation was seen to increase mobility and new forms of employment. The experts saw that the increase of entrepreneurship is going affect pension companies' operational environment and business development.

The effects of the above mentioned changes caused by workforce transformation were examined by the second research question. There were three major changes regarding pension companies' business and operations identified. Firstly, digital solutions were seen to be increasing significantly, and self-service channels becoming all more important. Secondly, pension companies' customer base was estimated to face a structural change affecting pension companies' service development. Small and medium sized companies and people in active working age were seen to be driving pension companies' service development in the future. Thirdly, the insurance interface in pension insurance was estimated to fade, because of utilization of intelligent automation in insurance and claims processes. This would mean that pension companies could and should focus on additional services if they wanted to keep in touch with their customers. However, the opinions regarding technological development and utilization of intelligent automation were not unanimous, but in general customers' expectations towards pension companies' services and requirements for digital and real-time services were seen to be growing.

The roles of pension companies both in the society in general and in labour market development were discussed by the second question. The experts were unanimous about the overall role of Finnish pension companies remaining remarkable. The demographical development and ageing of population were seen to increase the importance and to emphasize the role of pension companies within the next ten years. Pension companies were seen to have important role especially as investment managers, but they were also seen as important advisors and information providers for decision making parties. Especially top management of pension companies were suggested to have essential role as trusted parties in societal discussion. In addition to these roles, pension companies' core business, securing the Finnish pension cover and carrying out the statutory earnings-related pensions, was emphasised by the experts.

Pension companies' role as labour market developers raised dissenting opinions. Most of the experts saw that pension companies have a lot of potential and capacities to take a more important role on labour market as well, but there were also opposite opinions presented. The experts who were in favour of pension companies expanding their role, saw that pension companies should be ideological leaders and working life transformers. According to the experts, pension companies' large amount of information and industry knowledge are capacities that should be used for

improving working ability and wellbeing at work, and therefore careers and participation rate on labour market. Accordingly, pension companies were seen to have a role as working life developers but not necessarily as labour market developers. In turn, the experts who were not in favour of pension companies expanding their role explained that working life transformers come from elsewhere and that pension companies should focus on their traditional role and not to expand it.

The objective of the third research question was to gain understanding about the needed business strategy choices, and about the new functionalities required in order for pension companies to fulfil their responsibilities in the future. Additionally, operational changes were briefly examined by the third question. As seen in the results, pension companies were seen to have potential, but their role was not clearly determined to cover working life development. At the moment there are legislation restrictions that hinder pension companies' business development. However, in order to meet the growing expectations and the changing needs of their customers, pension companies should focus on turning their organizations and operations into truly customer focused operators. According to the experts, pension companies should continue improving the efficiency of their core processes, which could be achieved by increasing automation level and digital service channels. Fortunately, pension companies were mostly seen to have good capabilities for adopting intelligent automation. In general, continuous development, encouraging systems for internal innovation and customer involvement in service development were seen to be the most important operational changes in pension companies' business development.

6.2 Research valuation and critique

A research can be evaluated by its reliability and validity. The first mentioned means repeatability of research results, or in other words, the ability to give similar results on all occasions when conditions are constant. The latter in turn means the ability of the chosen research method to measure exactly what it is supposed to be measuring. In qualitative research, both reliability and validity are harder to evaluate than in quantitative research, because in qualitative research each case is seen to be unique. In order for qualitative research to include characteristics of reliability and validity, the chosen research method should be clearly and truthfully explained, so that a reader can get a holistic and complete picture of the used research methods and analysis processes. Additionally, utilization of several research methods, so called triangularity, increases reliability

of the of research results. (Hirsijärvi, Remes & Sajavaara 2013, 231-233) By using several methods, several perspectives can be covered and therefore the quality of a research can be increased (Eskola & Suoranta 2014, 69).

The research and analysis methods were clearly explained in the beginning of the empirical part of the thesis. The used questionnaires were formed exhaustively and according to the certain Delphi criteria, and the both questionnaires were attached in the appendix to be examined more closely. Additionally, the chosen research method, Delphi method, included both qualitative and quantitative questions, which is why the thesis can be seen to include characteristics of both reliability and validity. However, according to Hasson, Keeney and McKenna (2000, 2012-2013) Delphi method is problematic from reliability's point of view, because it is hard to estimate whether same results would be obtained by other panels of experts. In order to overcome this problem and to be able to evaluate the results as reliable and valid, the panel of experts and the research rounds should be evaluated by three criteria. Firstly, accuracy of the results increase over research rounds (Kauko & Palmroos 2014, 313-314). Secondly, research accuracy can be increased by successful selection of the panellists. Thirdly, response rates on each questionnaire round affect the solidity of obtained results. (Hasson, Keeney & McKenna 2000, 1013)

As mentioned above, in order to increase reliability even more, there could had been more questionnaire rounds. However, as two rounds satisfy the Delphi criteria, it is hard to estimate whether any more detailed results would have obtained or not. The response rates of the questionnaires were good, and only two of the experts did not answer the second question. However, even though the two experts dropped off the second questionnaire, all the chosen organizations were represented in the both questionnaires, and therefore the reliability of the results was not worsened by that. Also, as the questionnaires can be reviewed in the appendix, the research can be repeated by anyone. Even though experts might have different opinions and therefore the results might be different, in this thesis the differences in opinions were presented clearly and the results were not presented only by opinions of the majority. Therefore, the possible variety in opinions was taken into consideration.

Additionally, as already mentioned, Delphi method is suitable for research subjects that are future oriented, and that might create or have created varying discussion and debate. This matter relates to validity. Therefore, according to the criteria presented above, the obtained results of this thesis are relatively valid, as the panel of experts and the questionnaire rounds meet the above mentioned requirements. The panel of experts was formed in accordance with the Delphi criteria presented in the beginning of the empirical part of the research. However, excluding Technology Consulting Manager Jaakko Jutila, none of the chosen panellists were technology experts, even though many of the experts were responsible for several different development areas or futures research. By choosing a couple more technology experts in the research, the results could possibly have been even more accurate. However, the experts represented strong knowledge and experience of the industry and they had various backgrounds. Therefore, the chosen experts were well qualified to be included in the panel of experts. As conclusion, all these factors mentioned above support validity and reliability of this thesis.

6.3 Suggestions for further research

There are several suggestions for further research that can be given based on this thesis. To begin with, pension companies' role as working life developers could be researched in closer details. It would be beneficial to create a statistical model, by which it would be possible to estimate how much pension companies would be capable of improving working life from for example working ability's, wellbeing's and labour market participation rate's points of views. With numerical data and research results it would be easier to estimate whether it would be reasonable to expand pension companies' traditional role to different areas of working life development. Even though pension companies would be capable of reducing costs by increasing utilization of automation in their core processes, it would be important to research whether it is profitable to allocate the released resourced to working life development or not.

Another interesting viewpoint of the topic of this thesis would be to examine workforce transformation and its causes from pension companies' customers' point of view. Workforce transformation could be examined from both large and small companies' points of views, as well as from self-employed persons' point of view. It would be compelling to know, what kind of expectation pension companies' customers actually have and how they see pension companies'

role in the society. Additionally, it would increase understanding of what kind of services and help Finnish companies need, and how Finnish pension companies could get more involved in the daily life of their customers. This kind of approach could help pension companies in their development activities. There are also several other pension companies' internal perspectives that were not examined in this thesis. For example, effects of workforce transformation from investment activities' point of view would be an interesting research subject.

There were also several other utterly essential research subjects raised by the experts in the research questionnaires of this thesis. There are several big changes and reforms going on in the society at the moment. Some of them are soon going to be deployed on production, and some of them within just a couple of years. These are for example the upcoming pension reform, the Health, Social Services and Regional Governance Reform and the Income Registry. All of these are going to have an enormous effect on pension companies' operational environment, which is why all of them raise multiple interesting research subjects. The Health, Social Services and Regional Governance Reform could be researched, for example, as a customer base and competition transformer. Additionally, the development of both public and private pensions and pension companies would be an interesting research subject. The Income Registry would in turn be interesting research topic as it might cause fading of the insurance interface in pension insurance. In general, the service interfaces of pension companies would be very interesting and essential research topics.

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APPENDIX 1: QUESTIONNAIRE I

BACKGROUND

Which organization do you represent?
Name of the answerer:

CHANGE INDICATORS OF THE OPERATIONAL ENVIRONMENT OF PENSION COMPANIES

1. Rank the following phenomena by how big workforce transformation indicators you see them to be in pension companies' operational environment within the next ten years. (1=affects the most, 9=affects the least).

a. Digitalization
b. Intelligent automation (robotics, artificial intelligence)
c. Mobility
d. Globalization
e. Immigration
f. Ageing of population
g. Work-related legislation
h. Business ecosystems
i. Businesses and services becoming multi-channel
j. Other?

2. In scale of 1-5, estimate how the effects of following phenomena on pension companies' operational environment are going to change within the next ten years. (1=No change, 5=Increases remarkably).

	Does not change		Increases moderately		Increases remarkably
Digitalization	1	2	3	4	5
Intelligent automation (robotics, artificial intelligence)	1	2	3	4	5
Mobility	1	2	3	4	5
Globalization	1	2	3	4	5
Immigration	1	2	3	4	5
Ageing of population	1	2	3	4	5
Work-related legislation	1	2	3	4	5
Business ecosystems	1	2	3	4	5
Businesses and services becoming multi-channel	1	2	3	4	5
Other?	1	2	3	4	5

WORKFORCE OF PENSION COMPANIES' CUSTOMERS IN THE FUTURE

3. There are several factors related to workforce of Finnish companies and its development listed below. Estimate, how they are going to change within the next ten years.

	Goes down remarkably	Goes down	No change	Goes up	Goes up remarkably
Workforce mobility	1	2	3	4	5
Part of oung people in workforce	1	2	3	4	5
Capabilities of using digital services	1	2	3	4	5
Entrepreneursip	1	2	3	4	5
Having several part-time employments at the same time	1	2	3	4	5
Sensitivity to change job for job satisfaction reasons	1	2	3	4	5
Amount of people with high education	1	2	3	4	5
Change capabilities of employees	1	2	3	4	5
Amount of employees	1	2	3	4	5
Other?	1	2	3	4	5

4. Estimate, whether you agree or disagree with the following workforce related statements when time frame is the next ten years.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Machines and artificial intelligence are going to take over large parts manual and routine tasks.	1	2	3	4	5
Machines and artificial intelligence are going to take over large parts of more advanced tasks that require high intelligence.	1	2	3	4	5
Workforce must be more capable of learning and adaptive.	1	2	3	4	5
Need for data processing and analysing skills increases.	1	2	3	4	5
Continuous learning becomes more important.	1	2	3	4	5
Workforce mobility cross company and country boundaries increases.	1	2	3	4	5

PENSION COMPANIES' INTERNAL WORKFORCE IN THE FUTURE

5. The following statements relate to pension companies' internal workforce. Estimate how they are going to change within the next ten years.

	Goes down remarkably	Goes down	Does not change	Goes up	Goes up remarkably
Amount of employees working in sales	1	2	3	4	5
Amount of employees working in insurance services	1	2	3	4	5
Amount of employees working in investment functions	1	2	3	4	5
Utilization of automation in insurance process	1	2	3	4	5
Utilization of automation in claims process	1	2	3	4	5
Utilization of automation in investment process	1	2	3	4	5
Workforce turnover	1	2	3	4	5
Utilization of external workforce	1	2	3	4	5
Involvement of employees in development activities and encouraging innovation	1	2	3	4	5
Cross functional cooperation	1	2	3	4	5
General IT skills and knowledge	1	2	3	4	5
Need for analytical skills	1	2	3	4	5
Need for data processing skills	1	2	3	4	5

6. Estimate, whether you agree or disagree with the following statements when time frame is the next ten years.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Machines and artificial intelligence are going to take over large parts manual and routine tasks in pension companies.	1	2	3	4	5
Machines and artificial intelligence are going to take over large parts of pension companies' more advanced tasks that require high intelligence.	1	2	3	4	5
Workforce must be more capable of learning and adaptive.	1	2	3	4	5
Need for data processing and analysing skills increases.	1	2	3	4	5

Continuous learning becomes more important in pension companies.	1	2	3	4	5
Workforce mobility cross company and country boundaries increases.	1	2	3	4	5
Current capabilities of pension companies are insufficient to meet changing customer needs.	1	2	3	4	5

LABOUR MARKETS

7. Estimate, whether you agree or disagree with the following workforce related statements when time frame is the next ten years.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Workforce mobility on labour market is going to increase remarkably.	1	2	3	4	5
Work is going to be project oriented.	1	2	3	4	5
Freelance and entrepreneurship are going to increase remarkably.	1	2	3	4	5
Companies are going to utilize more external workforce in order to fill skill gaps.	1	2	3	4	5
Training offered by employers and continuous learning are going to decrease importance of having a higher degree on labour markets.	1	2	3	4	5
Increasing part of employees have several part time employments at the same time.	1	2	3	4	5

CHANGES FROM PENSION COMPANIES' POINT OF VIEW

8. Estimate, whether you agree or disagree with the following workforce related statements when time frame is the next ten years.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Workforce mobility is going to increase the amount of international pension insured employees.	1	2	3	4	5
Amount of small companies is going to increase.	1	2	3	4	5

Intelligent automation is going to decrease amount of pension contribution incomes.	1	2	3	4	5
Amount of employees in pension companies is going to decrease because of intelligent automation.	1	2	3	4	5
Besides core business services, corporate customers expect a large amount of additional services.	1	2	3	4	5
Besides core business services, personal customers expect a large amount of additional services.	1	2	3	4	5
Pension companies are going to have more competitive weapons than before.	1	2	3	4	5
New customer segments are created because of increase in freelance and entrepreneurship.	1	2	3	4	5
There are going to be new opportunities for pension companies to expand their businesses to new areas.	1	2	3	4	5
Demand for digital ad real-time services is going to increase.	1	2	3	4	5
Pension companies' role as labour market developer is going to become more important.	1	2	3	4	5
Expectations towards pension companies' current additional services is going to increase.	1	2	3	4	5
More insecurity has to be tolerated in decision making.	1	2	3	4	5
There are going to be changes in pension companies' concessions.	1	2	3	4	5
Agile methods should be used in business development.	1	2	3	4	5
Other possible effects?					

9. Estimate how remarkable risks the following factors are for pension companies and their mission within the next ten years.

	No risk		Medium risk		Remarkable risk
Renewals are not seen to be essential.	1	2	3	4	5
Renewals are not seen to be urgent.	1	2	3	4	5
Needed renewals are so large that those are hard to implement fast enough.	1	2	3	4	5
Future customer need are hard to forecast.	1	2	3	4	5

Changes in the operational environment cannot be estimated precisely enough, so that pension companies' activities could be improved.	1	2	3	4	5
Legislation blocks development.	1	2	3	4	5
Current investments and on-going development programmes block development.	1	2	3	4	5
Needed customer services cannot be developed in wanted schedule.	1	2	3	4	5
IT architecture does not adapt to future needs.	1	2	3	4	5
Rigid organizational structures slow down development.	1	2	3	4	5
There is a lack of internal innovation.	1	2	3	4	5
Personnel does not have needed capabilities.	1	2	3	4	5
Education of personnel is not sufficient.	1	2	3	4	5
Intelligent automation and robotics are not utilized as much as possible.	1	2	3	4	5
Needed changes are hard to identify.	1	2	3	4	5
There are no needed capabilities to implement needed changes.	1	2	3	4	5
Personnel lack of change capabilities.	1	2	3	4	5

10. The following factors relate to organizational and functional change needs. When bearing in mind pension companies' capabilities of meeting the future customer needs, estimate whether you agree or disagree.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Less organizational siloes	1	2	3	4	5
More cross functional cooperation	1	2	3	4	5
Encouraging and adequate systems for internal innovation	1	2	3	4	5
Focus of customer cooperation on large companies	1	2	3	4	5
Focus of customer cooperation on medium-sized companies	1	2	3	4	5

Focus of customer cooperation on small companies	1	2	3	4	5
More cooperation with other service providers, such as wellness companies	1	2	3	4	5
Increasing efficiency of core processes	1	2	3	4	5
Outsourcing functions	1	2	3	4	5
Continuous learning by doing rather than with help of learning programmes	1	2	3	4	5
More decision making power to lower organizational levels	1	2	3	4	5
Increasing efficiency of top management decision making	1	2	3	4	5
Increasing efficiency of middle management decision making	1	2	3	4	5
Make corporate culture more change-positive	1	2	3	4	5
Making development continuous	1	2	3	4	5
Developing service offerings to better meet customer needs better	1	2	3	4	5
Involving customers in service development	1	2	3	4	5
Utilizing intelligent automation in every function	1	2	3	4	5
Increasing automation level up to 80 %	1	2	3	4	5
Renewing IT core systems	1	2	3	4	5
Utilizing external workforce	1	2	3	4	5
Other change:					

11. Choose five of the organizational and functional change needs below, as the objective is to ensure pension companies' capabilities to meet the future customer needs.

a. Less organizational siloes
b. More cross functional cooperation
c. Encouraging and adequate systems for internal innovation
d. Focus of customer cooperation on large companies
e. Focus of customer cooperation on medium-sized companies
f. Focus of customer cooperation on small companies
g. More cooperation with other service providers, such as wellness companies
h. Increasing efficiency of core processes

i. Outsourcing functions
j. Continuous learning by doing rather than with help of learning programmes
k. More decision making power to lower organizational levels
l. Increasing efficiency of top management decision making
m. Increasing efficiency of middle management decision making
n. Make corporate culture more change-positive
o. Making development continuous
p. Developing service offerings to better meet customer needs better
q. Involving customers in service development
r. Utilizing intelligent automation in every function
s. Increasing automation level up to 80 %
t. Renewing IT core systems
u. Utilizing external workforce

12. Estimate, what kind of role pension companies are going to have in the Finnish society in the future?

13. Estimate, what kind of role pension companies are going to have in labour market development?

APPENDIX 2: QUESTIONNAIRE II

BACKGROUND

Which organization do you represent?
Name of the answerer:

CHANGE INDICATORS OF PENSION COMPANIES' OPERATIONAL ENVIRONMENT

1. Do you believe, that machines and artificial intelligence are going to replace employees of pension companies' customer companies in more advanced tasks that require higher intelligence within the next ten years? Why?

2. Do you believe, that machines and artificial intelligence are going to replace pension companies' employees in more advanced tasks that require higher intelligence within the next ten years? Why?

PENSION COMPANIES' CHANGE CAPABILITIES AND RISKS

On the first round, digitalization, intelligent automation and businesses and services becoming multi-channel were identified as the most remarkable change indicators. Increasing number of small enterprises, new forms of employment and increase in demand of digital and real time services were essential effects of workforce transformation. Additionally, expectations towards current services were seen to be increasing.

3. How well do you see these results to correspond to your view of the changes in pension companies' operational environment within the next ten years?

4. Taking into consideration the future customer needs and increasing requirements for creating a positive customer experience – what kind of capabilities do pension companies currently have in order to manage the challenges?

5. Choose five risks that you see to be the most remarkable for pension companies and their mission within the next ten years.

a. Renewals are not seen to be essential.
b. Renewals are not seen to be urgent.
c. Needed renewals are so large that those are hard to implement fast enough.
d. Future customer need are hard to forecast.
e. Changes in the operational environment cannot be estimated precisely enough, so that pension companies' activities could be improved.
f. Legislation blocks development.
g. Current investments and on-going development programmes block development.
h. Needed customer services cannot be developed in wanted schedule.
i. IT architecture does not adapt to future needs.

j. Rigid organizational structures slow down development.
k. There is a lack of internal innovation.
l. Personnel does not have needed capabilities.
m. Education of personnel is not sufficient.
n. Intelligent automation and robotics are not utilized as much as possible.
o. Needed changes are hard to identify.
p. There are no needed capabilities to implement needed changes.
q. Personnel lack of change capabilities.

CUSTOMERS AND SERVICES OF PENSION COMPANIES

6. What is going to be the biggest change in pension companies service offerings and customer service? Why?

7. Choose the five most important business development tools and activities, that pension companies can use for improving customer experience and customer satisfaction.

a. Involving customers in service development
b. Involving pension companies' own employees in service development
c. Digitalising service channels of sales
d. Digitalising service channels of claims
e. Digitalising service channels of advisory
f. New service channels
g. Turning services real time
h. Seamless multi-channel experience
i. New digital additional services
j. New non-digital services
k. Cutting down additional services
l. Improving service quality of current insurance services
m. Improving quality of current additional services
n. More effective marketing
o. Improving customer communication (content, channels, timing)
p. Improving customer management models (instructions of customer responsible)
q. Other?

8. Rank the following customer groups by how remarkably you believe them to affect pension companies' businesses and strategies within the next ten years. (1= affects the most, 6= affects the least)

a. Large companies
b. Medium-sized companies
c. Small companies
d. Entrepreneurs
e. Insured (employees of customer companies)

f. Retirees

Other remarkable or potential customer group?

9. What kind of changes Health, Social Services and Regional Government Reform is going to cause in workforce and pension companies customers? How these changes should be taken into consideration in pension companies' business operations?

COMPETITION OF PENSION COMPANIES

10. Do you believe that pension companies ae going to specialize in different services, so that there would be pension companies with different service profiles on the market in the future? Why?

11. Do you believe that core business and competitive elements of pension companies are going to differentiate within the next ten years? If yes, in which areas?

12. Should pension companies increase cooperation with each other in order to manage their societal mission better?

a. No
b. Yes, in which form?

ROLES AND RESPONSIBILITIES OF PENSION COMPANIES

13. Is or should pension companies core mission in the society be ideological leaders and working life transformers? If yes, how?

14. How are pension companies going to participate in labour market development during the next ten years? Multiple options can be chosen.

a. Only as followers
b. Supporters by investment activities
c. Improvers of participation rate in the labour force
d. Improvers of working ability and wellbeing at work
e. Rehabilitators
f. Information sources and producers for decision making parties
g. Influencers by providing expertise for societal decision making
h. Working life reformers
i. None of the above mentioned
j. Other role?

15. Which ones of the following services do you see as relevant and profitable parts of pension companies service offerings now or within the next ten years?

a. Utilizing properties by offering workspace to corporate customers (co-working space)
b. Utilizing properties by offering workspace to potential corporate customers (co-working space)
c. Improving innovation and networking of customer companies (customer workshops)
d. Online services for preventing working disability and rehabilitation
e. Online services for improving wellbeing at work and work communities
f. Online occupational health services
g. Education and training services for retirees in order to help them to find new employment
h. Education and training services for disabled in order to help them to find new employment
i. Online services for self-development and mental training of employees
j. None of the above mentioned
k. Other role?